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TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1885.

No. 157.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY AND E. REMINGTON & SONS, APPELLANTS,

vs.

THE WHITNEY ARMS COMPANY, ELI WHITNEY, PRESIDENT, AND ELI WHITNEY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF CONNECTICUT.

[redacted].

FILED NOVEMBER 1, 1882.

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1 Circuit Court of the United States for the District of Connecticut. In Equity.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY and E. REMINGTON AND SONS, Complainants & Appellants,

vs.

THE WHITNEY ARMS COMPANY, ELI WHITNEY, President, & ELI WHITNEY, Defendants & Respondents.

To the honorable the Supreme Court of the United States:

The appeal of the United States Rifle and Cartridge Company and E. Remington & Sons, the above-named complainants and appellants, respectfully showeth:

That upon the 9th day of March, 1874, the above-named complainants filed their bill of complaint in the circuit court of the United States for the district of Connecticut against the above-named defendants and respondents, The Whitney Arms Company, Eli Whitney, president, and Eli Whitney, in a suit in equity to enjoin and restrain the said Whitney Arms Company, Eli Whitney,
2 president, & Eli Whitney from infringing certain letters patent of the United States issued to one John W. Cochran and owned by said complainants and appellants by virtue of instruments of assignments, and praying for an accounting and payment by the said defendants of the profits by them realized, and of the damages suffered by the said complainants and appellants by reason of said alleged infringement of said letters patent, and that a *subpœna ad respondendum*, issued out of and under the seal of said circuit court, was duly served on said defendants.

That the said defendants filed their answer to said bill of complaint, and the said complainants replied thereto, and, issue being thus joined, that thereupon such proceedings were had in the said cause that on the 26th day of September, 1878, a final decree was entered in said circuit court, wherein it was in substance adjudged and decreed that the said bill of complaint be dismissed, with costs, which said decree is, as these appellants are advised, erroneous, and ought to be reversed.

Whereupon these appellants appeal from the whole of said decree of said circuit court to the Supreme Court of the United States, and
3 respectfully pray that the said decree of said circuit court, together with the bill of complaint, answer, replication, pleadings, depositions, evidence, and proceedings in said cause, may be sent to the Supreme Court of the United States without delay, and that the said Supreme Court will proceed to hear the said cause anew, and that the said decree of the said circuit court, and every

part thereof, may be reversed, or such other decree made as to the said Supreme Court shall seem just.

Dated New York, Oct. 25th, 1878.

UNITED STATES RIFLE
AND CARTRIDGE CO.,
By ROB'T J. WALKER, *Pres't.*
E. REMINGTON & SONS,
By GEO. GIFFORD, *Att'y.*

FREDERIC H. BETTS,
Counsel for Appellants.

I allow the within appeal.

N. SHIPMAN, *Judge.*

Filed Dec. 10th, 1879.

E. E. MARONI, *Clerk.*

The following is a copy of the bond filed with said appeal, viz:

4 *Bond for Costs.*

Circuit Court of the United States of America for the District of Connecticut.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY and E. REMINGTON & SONS, Appellants,
vs.
THE WHITNEY ARMS COMPANY, ELI WHITNEY, President, and ELI WHITNEY, Respondents.

Know all men by these presents, that we, John D. Vermeule and Robert S. Walker, are held and firmly bound unto the above-named defendants and respondents in the sum of two hundred dollars, to be paid to the said defendants; for the payment of which, well and truly to be made, we bind ourselves and each of us, our and each of our heirs, executors, and administrators, jointly and severally, firmly by these presents.

Sealed with our seals, and dated the 24th day of October, in the year of our Lord one thousand eight hundred and seventy-eight.

5 Whereas the above-named The United States Rifle and Cartridge Company and E. Remington and Sons have prosecuted, or are about to prosecute, an appeal to the Supreme Court of the United States, to reverse the judgment and decree rendered in the above-entitled suit by the judge of the circuit court of the United States for the district of Connecticut:

Now, therefore, the condition of this obligation is such that if the above-named appellants shall prosecute said appeal to effect, and answer all costs if they fail to make said appeal good, then this obligation shall be void; otherwise the same shall be and remain in full force and virtue.

JOHN D. VERMEULE. [L. S.]
ROB. S. WALKER. [L. S.]

Sealed and delivered, taken and acknowledged, this 24th day of October, 1878, before me, at New York city.

[NOTARIAL SEAL.] GEO. M. BAKER,
Notary Public, New York County.

6 UNITED STATES OF AMERICA,
Southern District of New York, } ss:

John D. Vermeule, being duly sworn, deposes and says: That he is a citizen of the United States, residing at West ——, Richmond county, New York; that he is a freeholder in said State; and that he is worth the sum of four hundred dollars over and above all his just debts and liabilities.

JOHN D. VERMEULE.

Sworn to before me this 24th day of October, 1878.

[NOTARIAL SEAL.] GEO. M. BAKER,
Notary Public, New York County.

UNITED STATES OF AMERICA,
Southern District of New York, } ss:

Robert S. Walker, being duly sworn, deposes and says: That he is a citizen of the United States, residing at 236 E. 51st St., New York city; that he is a freeholder in said State; and that he is worth the sum of four hundred dollars over and above all his just debts and liabilities.

ROB. S. WALKER.

Sworn to before me this 24th day of October, 1878.

[NOTARIAL SEAL.] GEO. M. BAKER,
Notary Public, New York County.

7 Circuit Court of the United States for the District of Connecticut.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY and E. REMINGTON AND SONS, Complainants & Appellants,

vs.

THE WHITNEY ARMS COMPANY, ELI WHITNEY, President, and ELI WHITNEY, Defendants & Respondents.

By the Honorable Nathaniel Shipman, one of the judges of the circuit court of the United States for the district of Connecticut, to The Whitney Arms Company, Eli Whitney, president, and Eli Whitney:

Whereas The United States Rifle and Cartridge Company and E. Remington & Sons have lately appealed to the Supreme Court of the United States from a decree rendered in the circuit court of the United States for the district of Connecticut, made in favor of you, the said Whitney Arms Company, Eli Whitney, president, &

8 Eli Whitney, and have filed the security required by law:

You are therefore hereby cited to appear before the said Supreme Court at the city of Washington on the first Monday of

October next, to do and receive what may appertain to justice to be done in the premises.

Given under my hand, at the city of Hartford in the district of Connecticut, the 25th day of October, in the year of our Lord one thousand eight hundred and seventy-eight.

N. SHIPMAN, *Judge.*

9 [Endorsed:] U. S. circuit court, dist. of Conn. U. S. Rifle and Cartridge Company *et al. vs.* Whitney Arms Co. *et al.* Citation on appeal. Frederic H. Betts, counsel for appellants, 20 Nassau St., N. Y. I hereby admit due and timely service of the within citation on appeal on behalf of all the respondents herein. Dated Oct. 28, 1878. Whitney Arms Co., by E. W. Whitney, pres.; Eli Whitney. Filed Dec. 12, 1879. E. E. Marvin, clerk.

10 Circuit Court of the United States for the Southern District of New York.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY & E. REMINGTON & SONS, Complainants & Appellants,

vs.

THE WHITNEY ARMS COMPANY, ELI WHITNEY, President, and ELI WHITNEY, Defendants & Respondents.

By the Honorable Nathaniel Shipman, one of the judges of the circuit court of the United States for the district of Connecticut, to The Whitney Arms Company, Eli Whitney, president, and Eli Whitney:

Whereas The United States Rifle and Cartridge Company and E. Remington & Sons have lately appealed to the Supreme Court of the United States from a decree rendered in the circuit court of the United States for the district of Connecticut, made in favor of you, the said Whitney Arms Company, Eli Whitney, president,
11 and Eli Whitney, and have filed the security required by law:

You are, therefore, hereby cited to appear before the said Supreme Court, at the city of Washington, on the first Monday of October next, to do and receive what may appertain to justice to be due in the premises.

Given under my hand, at the city of Hartford, in the district of Connecticut, the 25th day of October, in the year of our Lord one thousand eight hundred and seventy-eight.

N. SHIPMAN, *Judge.*

Due service acknowledged.

BENJ. F. THURSTON,
Sol'r for Whitney Arms Co. & Eli Whitney.

12 [Endorsed:] Citation and appeal.

13 *The Return of the Circuit Court of the United States for the District of Connecticut upon the foregoing Appeal.*

The bill of complaint, answer, replication, pleadings, depositions, evidence, proceedings, and decree, mention whereof is therein made, follow in the words, viz:

14 U. S. Circuit Court, District of Connecticut. In Equity.

U. S. RIFLE AND CARTRIDGE CO. and E. REMINGTON & SONS
vs.
WHITNEY ARMS CO. and Others.

15 Be it remembered that on the 9th day of March, A. D. 1874, a certain bill in equity was filed in court, in the words and figures following, viz:

In the Circuit Court of the United States, District of Connecticut.
In Equity.

To the honorable the judges of the circuit court of the United States for the district of Connecticut:

The United States Rifle and Cartridge Company, a corporation organized and doing business under and by virtue of the laws of the State of New York, and domiciled in the city of New York, said State, and E. Remington & Sons, a corporation organized and doing business under and by virtue of the laws of the State of New York, and domiciled at Ilion, in said State, bring this bill of complaint against the "Whitney Arms Company," a corporation organized under and by virtue of the laws of the State of Connecticut, and doing business at Whitneyville, in the district of Connecticut; Eli Whitney, as president of said last-named corporation and Eli Whitney individually, residing at Whitneyville, in said district of Connecticut, and a citizen of the State of Connecticut.

And thereupon your orators complain and say that they are informed and believe that one John W. Cochran was and is the original and first inventor of a new and useful improvement in breech-loading fire-arms, fully described in the letters patent hereinafter mentioned, and which had not been known or used before his said invention, and which, at the time of his application for a patent, as hereinafter mentioned, had not been for more than two years in public use or on sale.

16 And your orators, on information and belief, further show unto your honors that said John W. Cochran, being so as aforesaid the first inventor and discoverer of said improvement, and being also a citizen of the United States, did, on the 7th day of May, 1872, upon due application therefor, obtain letters patent of the United States (No. 126,446) for said invention, in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior, and countersigned by the Commissioner of Patents of the United States, bearing date the day and year last aforesaid, whereby there was granted and secured to said John W.

Cochran, his heirs, administrators, and assigns, or intended so to be, for the term of seventeen years from and after the date of said letters patent, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used the said improvement, as set forth in said letters patent, which are now remaining on record in the Patent Office of the United States; for the better definition of the nature and scope of which said invention, the complainants will produce said letters patent No. 126,446, or a copy thereof, as this honorable court shall direct.

And your orators further show unto your honors, upon information and belief, that prior to the issuing of said letters patent, to wit, on or about the 31st day of March, 1868, the said John W. Cochran, by an assignment, in writing, transferred unto one Samuel Fessenden one undivided equal half part of all his right, title, and interest in and to the said invention and improvement in breech-loading fire-arms, for which said Cochran afterwards obtained letters patent as aforesaid, which said assignment has been duly recorded in the Patent Office at Washington, as required by law.

And your orators further show unto your honors, upon information and belief, that afterwards, to wit, on or about the 16th day of February, 1869, the said Samuel Fessenden did, by assign-
17 ment, in writing, transfer unto one Richard L. Baldwin the undivided equal one-half of all his, the said Fessenden's, right, title, and interest in and to the said inventions and improvements in breech-loading fire-arms, which said assignment has been duly recorded in the Patent Office at Washington, as required by law.

And your orators further show unto your honors that afterwards, to wit, on or about the 10th day of September, 1872, the said Samuel Fessenden and Richard L. Baldwin did, by assignment in writing, transfer unto your orators, the said E. Remington & Sons, all their, the said Fessenden's and Baldwin's, right, title, and interest in and to the said inventions and improvements in breech-loading fire-arms, and to the said letters patent issued therefor to the said Cochran as aforesaid, which said assignment has been duly recorded in the Patent Office at Washington, as required by law.

And your orators further show unto your honors, on information and belief, that the said John W. Cochran did, on or about the 19th day of April, 1872, by assignment in writing, transfer unto one Samuel D. Hovey an undivided one-tenth part of all his, the said Cochran's, right, title, and interest in, of, and to the said inventions and improvements in breech-loading fire-arms, which said assignment has been duly recorded in the Patent Office at Washington, as required by law.

And your orators further show unto your honors, on information and belief, that afterwards, to wit, on or about the 27th day of April, 1872, the said John W. Cochran did, by assignment in writing, transfer unto your orators, The United States Rifle and Cartridge Company, all his, the said Cochran's, right, title, and interest in, of, and to the said inventions and improvements in breech-loading fire-

arms, which said assignment has been duly recorded in the Patent Office, as required by law.

That on or about the — day of April, 1872, the said Samuel
18 D. Hovey did, by assignment in writing, transfer unto your orators, The United States Rifle and Cartridge Company, all his, the said Hovey's, right, title, and interest of, in, and to the said inventions and improvements in breech-loading fire-arms, which assignment has been duly recorded in the Patent Office, as required by law.

And your orators further show unto your honors that by virtue of the premises and of said instruments of assignment they became and now are the sole and exclusive owners of said letters patent No. 126,446 and the invention therein described, and of all the rights and privileges granted and secured, or intended to be granted and secured, thereby, as by said several instruments of assignment, and the certificates of such recording thereto affixed, or duly authenticated copies thereof, ready in court to be produced, will fully and at large appear.

And your orators further show unto your honors that your orators, The United States Rifle and Cartridge Company, did, on or about the 31st day of December, 1872, by instrument in writing, grant unto your orators, E. Remington & Sons, the exclusive license to make and sell the invention and inventions described in the said letters patent granted to said John W. Cochran as aforesaid, as by which said instrument in writing, which has been duly recorded in the Patent Office in Washington, or a duly authenticated copy thereof, ready in court to be produced, will fully and at large appear.

That by said instrument in writing, granting such exclusive license as aforesaid, it is made the duty of your orators, E. Remington & Sons, to prosecute by action at law or suit in equity whatever person or persons, corporation or corporations, had, prior to the date of said license, infringed, or who should thereafter infringe, said letters patent, and to restrain the further infringement thereof, and your orators, the said E. Remington & Sons, are thereby authorized to use the name of the said United States Rifle and Cartridge Company, as complainants in such actions at law or suits in equity, and
19 are entitled to receive and retain all the proceeds or recoveries in said suits.

And your orators further show unto your honors that this suit is brought for the benefit of your orators, the said E. Remington & Sons.

And your orators further show unto your honors that they verily believe, and charge the fact to be, that the said John W. Cochran was and is the original and first inventor of the improvement described in and secured by said letters patent, and that your orators are now the sole and exclusive owners and holders of the said inventions and letters patent so granted therefor, and that arms in large quantities have been made under said patent by your orators and by their authority, with great profit unto your orators and advantage to the public, and that the public have generally acknowledged and acquiesced in the aforesaid rights of your orators; and

your orators believe that they will realize and receive large gains and profits therefrom if infringements by said defendants and their confederates shall be prevented.

Yet the said defendants, well knowing the premises and the rights secured to your orators aforesaid, but contriving to injure your orators and deprive them of the benefits and advantages which might and otherwise would accrue unto them from said invention, after the said date and issuance of said letters patent, and before the commencement of this suit, did, as your orators are informed and believe, make, use, and sell, and are now making, using, and selling to others to be used, large quantities of fire-arms made according to and employing and containing the invention described in and patented by said letters patent numbered 126,446, without the license or allowance and against the will of your orators, and in violation of their rights, and in infringement of the aforesaid letters patent, and that they continue still so to do, and that they are threatening and cause the complainants to fear that they
20 will hereafter make, use, and sell the aforesaid fire-arms in large quantities, and to supply the market therewith, all in defiance of the rights acquired by and secured to your orators as aforesaid, and to their great and irreparable loss and injury, and by which they have been and still are being deprived of great gains and profits which they might and otherwise would have obtained, but which have been received and enjoyed and are being received and enjoyed by the said defendants by and through their aforesaid unlawful acts and doings.

And your orators further show unto your honors, on information and belief, that said defendants have sold large quantities of said fire-arms and have a large quantity on hand which they are offering for sale, and have made and realized large profits and advantages therefrom, but to what extent and how much exactly your orators do not know, and they pray a discovery thereof. And your orators say that the use of said said invention by said defendants and their preparation for and avowed determination to continue the same, and their other aforesaid unlawful acts in disregard and defiance of the rights of your orators, have the effect to encourage and induce others to venture to infringe said patent in disregard of your orators' rights.

That the complainants have caused notice to be given to said defendants of said infringements and request to be made that they desist, but that they have continued the same.

And your orators pray that said defendants, The Whitney Arms Company, Eli Whitney, president, and Eli Whitney individually, and their and each of their officers, stockholders, servants, agents, attorneys, and workmen, and each and every of them, may be restrained and enjoined by the order and injunction of this honorable court from directly or indirectly making, constructing, using, vending, delivering, working, or putting into practice, operation, or use, or in anywise counterfeiting or imitating the said invention, or any part thereof, or any fire-arms made in accordance there-
21 with or like or similar to those which they have heretofore made, and that the said defendants may be decreed to

the costs of this suit, and that your orators may have such further relief or such other relief as to this honorable court shall seem meet and as shall be agreeable to equity.

May it please your honors to grant unto your orators the writ of injunction, issuing out of and under the seal of this honorable court, commanding, enjoining, and restraining the said defendants, Whitney Arms Company, Eli Whitney, president, and Eli Whitney individually, and their and each of their officers, stockholders, servants, agents, attorneys, and workmen, and each and every of them, as is hereinbefore in that behalf prayed.

And forasmuch as your orators can have no adequate relief except in this court, to the end, therefore, that the said defendants may, if they can, show why your orators should not have the relief hereby prayed, and may upon their corporal oaths, and according to their best and utmost knowledge, remembrance, information, and belief, full, true, direct, and perfect answers make to the premises, and to all the several matters hereinbefore stated and charged as fully and particularly as if severally and separately interrogated as to each and every of said matters, and may be compelled to account for and pay to your orators the profits by them acquired, and the damages suffered by your orators from the aforesaid unlawful acts, and that the court may assess said profits and damages, and may increase the damages to a sum not exceeding three times the amount thereof:

May it please your honors to grant unto your orators the writ of subpœna, issuing out of and under the seal of this honorable court, directed to the said defendants, The Whitney Arms Company, Eli Whitney, president, and Eli Whitney individually, commanding them by a certain day, and under a certain penalty, to be and appear in this honorable court, then and there to answer the
22 premises, and to stand to and abide such order and decree as may be made against them.

And your orators will ever pray, &c.

E. REMINGTON & SONS.
P. REMINGTON, *Vice-Pres't.*

THOMAS RICHARDSON,
Ilion, N. Y., Comp'ts' Sol'r and of Counsel.

UNITED STATES OF AMERICA,
Northern District of New York, } *ss:*
State of New York, County of Herkimer,

On the 4th day of March, 1874, before me, personally appeared Philo Remington, vice-president of the corporation of E. Remington & Sons, one of the complainants in the foregoing bill, to me known, who, being by me duly sworn, did depose and say: That he has heard read the said bill and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein stated on information and belief, and as to those matters he believes it to be true. P. REMINGTON.

Sworn to before me, this 4th day of March, 1874.

[L. S.] F. C. SHEPARD,
2—157 *Notary Public, Herkimer Co., N. Y.*

And on the same day, namely, the 9th day of March, A. D. 1874, there issued out of court a writ of subpœna, which was duly served on the respondents named in said bill, and which, with the return of service endorsed thereon, was and is in the words & figures following, viz:

23 The President of the United States of America to the marshal
[SEAL.] of the District of Connecticut, sendeth Greeting:

You are hereby commanded to summon The Whitney Arms Company, a corporation organized under the laws of the State of Connecticut, and doing business in the village of Whitneyville, in the State and district of Connecticut, to appear before the judges of the circuit court of the United States of America for the district of Connecticut, in the second circuit, in equity, on the first Monday of April, 1874, wheresoever the said court shall then be, to answer a bill of complaint exhibited against said The Whitney Arms Company in said court by The United States Rifle & Cartridge Company, a corporation organized and doing business under & — virtue of the laws of the State of New York, and domiciled in the city of New York, in said State, & E. Remington & Sons, a corporation organized under the laws of the State of New York, and domiciled at Ilion, in said State, and then and there to answer the same, and to do and abide by what said court may order and decree in the premises.

Make due service and return at least twenty days before said first Monday of April, 1874.

Witness the Hon. Morrison R. Waite, Chief Justice of the Supreme Court of the United States, at Hartford, this 9th day of March, A. D. 1874.

LOREN P. WALDO, *Clerk.*

The defendant is required to enter its appearance in said cause in the clerk's office of said court on or before the day at which this writ is returnable, or, by the rules of said court, said bill will be taken as confessed.

LOREN P. WALDO, *Clerk.*

THOS. RICHARDSON, *Ilion, N. Y.,*
Complainants' Solicitor.

UNITED STATES OF AMERICA, *District of Connecticut:*

WHITNEYVILLE, *March 10th*, 1874.

Then and there I left a true and attested copy of the within writ in the hands of Henry A. Church, who is secretary of the within-named Whitney Arms Company.

A[torn] P. R. CARLL,
U. S. Marshal for the District of Connecticut.

Travel	2
Service	2
Copy	75
Return to court	4
	8 75

24 And on the same day Thos. Richardson, Esq., of Ilion, N. Y., entered his appearance as solicitor for the complainants, and on the 13th day of March, A. D. 1874, John S. Beach, Esq., of New Haven, entered his appearance [as] solicitor for the respondents.

And on the 8th day of June the respondent filed its answer to said bill of complaint in the words and figures following, viz:

UNITED STATES OF AMERICA, } ss:
District of Connecticut, }

UNITED STATES RIFLE AND CARTRIDGE CO. *et al.*
v.
THE WHITNEY ARMS COMPANY *et al.*

The answer of The Whitney Arms Company, Eli Whitney, president, and Eli Whitney, defendants, to the bill of complaint of the United States Rifle and Cartridge Company and E. Remington & Sons, complainants.

The defendants, now and at all times hereafter reserving to themselves the right of exception to the manifold errors, uncertainties, and insufficiencies of said bill of complaint, for answer thereto, or to so much thereof as they are advised it is material they should answer, answering, say:

That they are informed and believe and admit that on or about the 7th day of May, 1872, letters patent of the United States were issued to John W. Cochrane for an alleged improvement in breech-loading fire-arms, but they do not admit, but deny, that the same was issued upon due application therefor or in due form of law.

And, further answering, they say that they have no knowledge, save as derived from the allegations of said bill, whether the complainants, or either of them, are corporations organized, as therein alleged, under the laws of the State of New York, and they deny said allegations, to the end that said complainants may make due proof thereof.

And, further answering, they say that they have no knowledge, except by the allegations of said bill, of the several mesne assignments under which the complainants claim title to the said letters patent, and in like manner and for like purpose deny
25 the same; and they further deny that the said complainants derived thereby any such title to said letters patent as enables them to invoke the aid of this court in their behalf.

And the said defendants, further answering, deny that the said Cochrane was the first and original inventor of the alleged invention described in said letters patent, or of any substantial or material part thereof, but, on the contrary thereof, the said defendants, on information and belief, say that the same was, prior to any supposed invention thereof by the said Cochrane, described in certain letters patent for improvements in fire-arms, to wit:

Letters patent of the United States issued to A. E. Burnside, bearing date March 28th, 1856, being No. 14491.

Letters patent of the United States issued to Thomas Lee, bearing date April 27th, 1858, being No. 20073.

Letters patent of the United States issued to Alonzo D. Perry, bearing date November 28th, 1854, being No. 12001.

Letters patent of the United States issued to Rollin White, bearing date March 14th, 1855.

Letters patent of the United States issued to W. A. Sweet, bearing date August 15th, 1854, being No. 11536.

Letters patent of France issued to Louis Nicholas August Flobert, bearing date November 17th, 1855, being No. 14713, French Brevets.

And also that said alleged inventions and substantial or material parts thereof were, prior to any alleged invention thereof by the said Cochrane, known to and used by the following-named persons at the several places affixed to their names respectively, to wit:

C. D. Shubarth, of Providence, in the State of Rhode Island.

Alonzo D. Perry, of Newark, in the State of New Jersey.

26 James Hunter Sears, of Detroit, in the State of Michigan.

And, further answering, the defendants, upon information and belief, say that the thing patented and described in said letters patent had been in public use and on sale for more than two years prior to the application of the said Cochrane, upon which said letters patent were issued.

And the defendants, further answering, upon information and belief say that the application of the said Cochrane, upon which said letters patent were issued, was made and filed in the office of the Commissioner of Patents on the sixth day of May, 1868; and they aver that for more than two years prior to the date of said application, and to the filing thereof, the thing patented by and described in said letters patent had been in divers parts of the United States, and especially in the city of New York and in New Haven, Connecticut, in public use and on sale, with the consent and allowance of the said J. W. Cochrane.

And further answering, upon information and belief they aver that long prior to the aforesaid date of the application of said Cochrane, upon which said letters patent were issued, the thing patented by the said letters patent and the invention therein described had been by the said Cochrane abandoned to the public.

And these defendants pray that they may have the same advantage of the allegations of this answer as if they had set up the same in a plea to the said bill of complaint.

And, further answering, the defendants say they have no knowledge as to so much of the allegations of said bill as relate to the large profits made by the complainants by the use of said alleged invention, and leave the complainants to make such proof thereof as they may be advised; but they deny that the public have generally acknowledged and acquiesced in the rights of said complainants, as stated in said bill.

27 And the defendants, further severally answering, say that they deny having done any wrong or injury to the said complainants, or that they have invaded or infringed any of his rights, and they respectfully submit to this honorable court that the com-

plainants have no right to any injunction or other relief prayed for in said bill, and they deny that any matter or thing in said complainants' bill contained, and not herein and hereby well and sufficiently answered, traversed, or denied, is true to the knowledge or belief of the defendants.

All of which matters and things the defendants are willing to aver, maintain, and prove as this honorable court shall direct; and they pray hence to be dismissed, with reasonable costs and charges in this behalf most wrongfully sustained.

WHITNEY ARMS CO.,
By E. WHITNEY, *Pres't.*

JNO. S. BEACH,
Solicitor and of Counsel.

UNITED STATES OF AMERICA, *District of Connecticut*, } *ss:*

Eli Whitney, being duly cautioned and sworn, deposes and says: That he is president of The Whitney Arms Company, defendants in the above suit; that he has read the foregoing answer, subscribed by them, and that the same is true, of his own knowledge, except as to those matters therein stated on information and belief, and as to those matters he verily believes it to be true.

ELI WHITNEY.

Subscribed and sworn to before me this sixth day of June, A. D. 1874.

JOHNSON T. PLATT,
U. S. Commissioner.

And on the 27th day of June, A. D. 1874, the complainants filed in court their replication to said answer of the respondent in the words & figures following, viz:

28 U. S. Circuit Court, District of Connecticut. In Equity.

UNITED STATES RIFLE AND CARTRIDGE CO. *et al.*
vs.
THE WHITNEY ARMS CO., ELI WHITNEY, President, and ELI WHITNEY.

The replication of the above-named complainants to the answer of the above-named defendants.

These repliants, saving and reserving to themselves, now and at all times hereafter, all and all manner of benefit and advantage of exception which may be had or taken to the manifold insufficiencies of the said answer, for replication thereunto say that they will aver, maintain, and prove their bill of complaint to be true, certain, and sufficient in the law to be answered unto, and that the said answer of said defendants is uncertain, untrue, and insufficient to be replied unto by these repliants, without this, that any other matter or thing whatsoever, in the said answer contained, material or effectual in the law to be replied unto, and not herein and hereby well

and sufficiently replied unto, confessed and avoided, traversed or denied, is true; all which matters and things these repliants are and will be ready to aver, maintain, and prove, as this honorable court shall direct, and humbly pray as in and by their said bill they have already prayed.

THOS. RICHARDSON,
Sol'r and of Counsel for Complainants.

29 And on the 4th day of November, A. D. 1874, the defendants filed the following stipulation as to infringements, viz:

U. S. Circuit Court, District of Connecticut. In Equity.

U. S. RIFLE AND CARTRIDGE CO. *et al.*
vs.
WHITNEY ARMS CO., ELI WHITNEY, President, and ELI WHITNEY.

It is hereby stipulated and agreed that arms like the one labeled "Whitney's Rifle," and having the number 2059 stamped on it, were manufactured and sold by the defendants since the 31st day of December, 1872, and before the commencement of this suit, and that said arm so labeled and numbered is one of those so manufactured and sold by the defendants.

Dated Nov. 20th, 1874.

JNO. S. BEACH,
Defendants' Solicitor.

And on the 22nd day of May, 1876, the defendants filed in court the following motion and consent to amend, viz:

30 United States Circuit Court, District of Connecticut.

THE WHITNEY ARMS CO. *vs.* U. S. RIFLE AND CARTRIDGE CO.

The defendants in this cause move to amend their answer as on file, by adding to the list of witnesses shaving knowledge of the use of the thing patented prior to the supposed invention thereof by the patentee the name of Ambrose E. Burnside, of Providence, Rhode Island, and at said Providence.

JNO. S. BEACH,
Solicitor for Defendants.

31 UNITED STATES RIFLE & CARTRIDGE CO. and E. REMINGTON & SONS
vs.
THE WHITNEY ARMS CO., ELI WHITNEY, Pres't, & ELI WHITNEY.

The defendants are permitted to amend their answer in the above-entitled case by inserting at the commencement of folio 43 the following:

And the defendants, further answering, say that the said alleged invention of the said John W. Cochran described and claimed in said letters patent so as aforesaid granted on the 7th day of May, A. D. 1872, numbered 126,446, or a substantial and material part

thereof, was before the said alleged invention of the said Cochran described and shown in the following letters patent of the United States:

Letters patent to Leonard ——, dated Jan'y 27, A. D. 1863, No. 37501.

Letters patent to —— Sillman, dated Oct. 17, 1865, No. 50507.

Letters patent to Laidley & Emory dated May 15, 1866, No. 54743.

GEO. GIFFORD.

On the 7th, 8th, & 9th days of June, 1876, said cause was fully argued by Messrs. Betts & Gifford for the complainants, & Messrs. Thurston and Beach for the respondents, and the following evidence was filed and used upon the hearing, viz:

32 *Complainants' Evidence.*

United States Circuit Court, District of Connecticut. In Equity.

U. S. Rifle and Cartridge Company and E. Remington and Sons

vs.

Whitney Arms Co., Eli Whitney, President, and Eli Whitney, Individually.

Proofs for final hearing, taken on the part of the complainants in the above cause, under and pursuant to the 67th Rule in Equity as amended, before Joseph Gutman, Jr., Esq., special examiner.

N. Y., *November 20th*, 1874, P. M.

Present: Mr. Gifford, counsel for complainants, and Mr. Beach, counsel for defendants.

Counsel for complainants puts in evidence the following:

1st. A certified copy of letters patent of the United States granted to John W. Cochran, dated May 7th, 1872, numbered 126,446, for improvement in breech-loading fire-arms, which is marked "Exhibit Cochran Patent."

2d. Certified copies of the following assignments:

One by John W. Cochran to Samuel Fessenden, dated March 31st, 1868, which is marked Exhibit Assignment No. 1.

One by Samuel Fessenden to John W. Baldwin, dated February 16, 1869, which is marked Exhibit Assignment No. 2.

33 One by John W. Cochran to Samuel D. Hovey, dated April 19, 1872, which is marked Exhibit Assignment No. 3.

One by Samuel D. Hovey to United States Rifle and Cartridge Company, dated the — day of April, 1872, which is marked Exhibit Assignment No. 4.

One by John W. Cochran to the United States Rifle and Cartridge Company, dated April 27, 1872, which is marked Exhibit Assignment No. 5.

One by Samuel Fessenden and Richard L. Baldwin to E. Remington & Sons, dated September 10, 1872, which is marked Exhibit Assignment No. 6.

A certified copy of an exclusive license from United States Rifle and Cartridge Company to E. Remington & Sons, dated December 31, 1872, which is marked Exhibit License.

EDWARD S. RENWICK, a witness of lawful age, produced on the part of the complainants, and having been by me first duly cautioned and sworn to testify the truth, the whole truth, and nothing but the truth in the matter of controversy herein, and being examined by Mr. GIFFORD, counsel for complainants, deposes and says as follows:

1 Q. What is your name, age, residence and occupation?

A. My name is Edward S. Renwick; I am 51 years of age; I reside at Milburn, N. J., my place of business being in the city of New York. I am by profession a civil and mechanical engineer, but for many years past I have been engaged almost exclusively in acting as expert in the trial of patent causes, and in soliciting patents.

2 Q. State whether or not you have given special attention to the construction and operation of fire-arms.

A. I have. I have examined a large number of the specifications and drawings of patents for improvements in fire-arms, both American and foreign. I have been called upon to testify as expert in causes involving the construction and operation of fire-
34 arms. I have been called upon to prepare applications for patents for improvements in fire-arms. I have visited factories in which fire-arms were manufactured, and for several years I was engaged in the construction of tools for the manufacture of fire-arms, and in improving the construction of breech-loading pistols.

3 Q. Have you read and do you understand the contents of a certified copy of letters patent granted to John W. Cochran, dated May 7, 1872, No. 126,446, for improvement in breech-loading fire-arms, and which is marked Exhibit Cochran Patent?

A. I have read the certified copy of the patent recited in the question, and believe that I understand the construction and operation of the mechanism described and recited therein.

4 Q. Please look at the fire-arm marked Exhibit Whitney Rifle, and which has the number 2059 stamped on it, and state whether or not said arm contains any and which of the inventions described in said patent and specified as the invention of said Cochran, and accompany your answer with reasons for your conclusions.

A. I have examined the Whitney's rifle referred to in the question, and find that it contains in substance the combination recited in the first claim of the said Exhibit Cochran Patent. My reasons for this opinion are as follows: The improvement recited in the said first claim, as I understand the same, consists of two members, which are, first, a breech block for closing the open butt of the barrel of a breech-loading gun, which breech block has the characteristic that it is pivoted to the fire-arm so that it may swing backward and downward in the arc of a circle around a fixed point, which is the axis of the pivot on which it swings; second, a brace or locking

piece for the purpose of holding the said breech block firmly in place when it is closed against the butt of the barrel, which brace has the characteristics that it is a different instrument from the nose
35 of the hammer; that it is pivoted to the frame of the fire-arm in the rear of the breech block before mentioned, and that it is so arranged as to swing upward in unlocking the breech. These two members are so combined that the said breech-block swings to and fro on its pivot for the purpose of closing and opening the breech of the fire-arm; that when the breech block is closed the brace swings on its pivot in a downward and forward direction so as to hold the breech block in its place, and that the said brace must be swung upward and backward to unlock the said breech block before the latter can be opened. Now I find that the said Whitney's rifle contains the same two devices as are recited in the said claim, and combined together substantially in the same manner so that the mode of operation is the same. Thus the breech block of said Whitney's rifle corresponding with the breech block of the said Cochrane combination is the breech block or breech piece which swings upon a pivot in the rear of the barrel, and has all of the characteristics of the breech block of the said Cochrane patent. The brace of the said Whitney's rifle corresponding with the brace recited in the said first claim is the curved piece of metal which swings upon a pivot in the rear of the said breech block, and has all of the characteristics of the brace recited in the first claim of the said Cochran patent, as above stated by me.

E. S. RENWICK.

Subscribed and sworn to before me, this 20th day of November, 1874.

JOSEPH GUTMAN, JR.,
Special Examiner.

36 EXHIBIT COCHRAN PATENT.

Specification of Letters Patent No. 126,446, *Dated May* 7, 1872, *to John W. Cochran.*

To all whom it may concern:

Be it known that I, John W. Cochran, of New York, in the county of New York and State of New York, have invented certain new and useful improvements in breech-loading guns, and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention consists in a novel construction and arrangement of a swinging breech piece with a brace pivoted to the frame in rear of the breech piece for the purpose of holding the same securely in position while the gun is being fired. It also further consists in combining with the breech piece an ejector for starting or removing the cartridge shell as the breech is opened.

Figure 1 is a longitudinal vertical section with the breech closed. Fig 2 is a similar view with a modification of the cartridge ejector. Fig. 3 is a longitudinal vertical section with the breech partially opened to represent the operation of withdrawing the shell. Fig. 4 is a top plan view of the breech block detached.

A represents the barrel, which is constructed in the usual style for this class of arms, the rear end of the barrel being left entirely open. D represents the stock, made of any suitable style to adapt it to the working parts of the arm. In rear of the barrel I locate a breech block, B, of the form represented in the drawing.
37 This breech block I hinge or pivot at its front lower portion on a bolt, *e*, as represented in Figs. 1, 2, and 3; it being of suitable size to entirely cover and close the breech end of the barrel when turned up in the position represented in Figs. 1 and 2. In the drawing I have represented the front face of this breech block, B, as having in it a recess of sufficient size to fit over the rear end and flange of the cartridge *f* when the breech is closed; but it is obvious that, instead of having this recess in the face of the breech block, it may be omitted and the rear of the chamber be counterbored to permit the flange of the cartridge to enter and rest therein, the result being the same in either case. For the purpose of securely locking or bracing this breech block B in place when closed, so as to withstand the pressure of the gases evolved in the discharge of the arm, I pivot a lever, C, in the under part of the stock D in rear of the breech block, as represented in Fig. 1; this lever C being pivoted on a bolt, *a*, and having its front end formed substantially as shown, so as to form a strong brace, resting against the rear side of the breech block, and thus brace it firmly in place, as clearly shown in Figs. 1 and 2. This lever extends back a suitable distance and terminates in a handle, *h*, by which it can be readily operated.

As will be seen in Fig. 4, the breech block is so constructed that that portion which rests against the front end of the lever C forms a central longitudinal projection much narrower than the front portion which covers the rear end of the barrel. This form is adopted simply to save metal and weight, and because by thus forming it a less space is required for it to rest in when turned back.

The device for withdrawing the cartridge shell consists of a small spring hook, *n*, fitted into a recess of proper size in the front side or face of the breech block B, as shown in Figs. 1 and 3; this spring *n* having its front end formed into a small hook to pass under and in front of the flange of the cartridge shell when the breech is closed, as represented in Fig. 1. To enable this hook *n* to
38 slip under the flange of the cartridge, (in case the latter has been shoved entirely into the chamber, while the breech block remained thrown back,) the upper front point or portion of the hook should be slightly beveled, as represented in Fig 3, and there should be a small recess made in the rear end of the barrel, at its lower side, for this projecting point of the hook to enter as the breech is closed; this recess being shown in Fig. 3 at *u*.

With the breech block B and the ejector *n* thus constructed and arranged, it will be seen that when a cartridge, *f*, is shoved into the chamber and the breech then closed the hook on the end of the ejector *n* will be forced under the flange and engage with the front face of said flange, as represented in Fig. 1, and that when the breech block B is swung back the hook on the front end of the ejector *n* will draw the cartridge shell out of the bore as it swings back with the breech to a point where, as it moves in the arc of a circle, of which the pivot *e* is the centre, it passes below the horizontal plane in which the flange of the shell moves, when it will be released from tha shell, leaving the latter sticking part way out of the rear end of the barrel, as clearly represented in Fig. 3; or, if the breech block be thrown suddenly back, the momentum imparted to the shell may be sufficient to throw it entirely out of the chamber. As, however, springs are considered objectionable, especially in military arms, subjected, necessarily, to rough treatment, it is obvious that instead of the spring *n* the ejector may consist of a solid spur or stud, *o*, formed on the lower front side of the breech block B, as represented in Fig. 2; this stud *o* operating in the same manner to withdraw the shell as the spring ejector *n* would. If, however, this form be adopted, care must be taken not to shove the cartridge entirely into its place in the chamber before commencing to close the breech block, because, if it were, then it is obvious that the stud *o* would strike against the rear end of the cartridge when the breech was closed, and thus
39 prevent the breech block from closing perfectly, and, at the same time, endanger the exploding of the cartridge, especially if rim-primed cartridges were used. When this form of ejector is used the shell should be shoved partially in and the breech block B then turned up, the stud *o* passing under the flange and the block B at the same time shoving the cartridge into its place, with the stud *o* in front of the flange, ready for withdrawing the shell when the breech is opened.

It is obvious that either centre or rim-primed cartridges may be used in such a gun. If the arm be intended for using the latter only, then a firing pin will be located in the breech block B, in the position represented by *t* of Fig. 4, so as to strike the flange of the cartridge. If central primed cartridges are to be used, then the firing pin will be located as represented by the dotted lines in Fig. 2, so as to strike at the centre of the rear end of the cartridge.

If desired, a link or rod, *l*, may be used to connect the lever C with an arm or projection formed on the lower extremity of the breech block, as represented in red in Fig. 1, for the purpose of opening and closing the breech by the movements of the lever C. If this be done there must be sufficient lost motion in the link *l* to permit the front end of the lever C to pass from behind the block B and thus unlock the latter before the link *l* operates on the breech block to throw it open. Whether this link *l* be used or not the upper rear face of the block B should be formed on the arc of a circle, of which *e* is the centre, or nearly so, and the front arm of the lever C be so curved or formed as to permit the breech block to swing down in front of it as the latter is thrown up.

By these means I construct an arm that is simple, efficient, and durable, and which, by the act of opening the breech, withdraws the shell, in whole or in part, without the use of any other devices or parts than those attached to and forming a part of the breech block.

40 I am aware that a gun has heretofore been described having a swinging breech block similar to mine, and, therefore, I do not claim such breech block separately considered.

I am also aware that a gun has been described in which there was a breech block having a longitudinal backward and also a downward movement with a tooth pivoted thereto to act as an extractor; also, that a pistol has been described having a swinging breech that was locked in position by the nose of the hammer when fired, and therefore I do not claim such; but having fully described my invention, what I do claim is—

1. The combination, in a breech-loading gun, of a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point, with a brace other than the nose of the hammer pivoted to the frame in rear of said block, said brace being arranged to swing upward in unlocking the breech, substantially as described.

2. The breech block B, pivoted to the frame so as to swing backward and downward without any longitudinal sliding movement in opening, in combination with the extractor *n* or *o*, the combination and mode of operation being substantially such as herein described.

3. I also claim the combination of the swinging breech block and the extractor with the pivoted lever or brace, the said parts being arranged in relation to each other, and the combination being substantially such as herein described.

J. W. COCHRAN.

Witnesses:
JOHN BISSELL.
W. C. DODGE.

41 EXHIBIT ASSIGNMENT No. 1.

H. 12, p. 374.

Whereas I, John W. Cochrane, of the city, county, and State of New York, am the inventor of certain new and useful improvements in breech-loading fire-arms, consisting: 1st, Of a breech-loading gun in which a hinged breech block is used, and which has attached to and carried with it an ejector for withdrawing the cartridge-shell. 2d. The combination and arrangement of the hinged breech block and lever, where said parts are constructed and arranged for operation in a breech-loading gun. 3d. The combination and arrangement in a breech loading of the breech block, lever, and link, as substantially set forth and more particularly described in my petition to the Commissioner of Patents, praying for letters patent of the United States for said inventions, dated at said New York, the 28th day of March, A. D. 1868, and am the owner of all right, title, and interest therein; and whereas I have made application, in

conformity with the laws of the United States of America, for letters patent for such invention:

Now know all men by these presents, that for and in consideration of one dollar paid to me by Samuel Fessenden, of Stamford, Fairfield county and State of Connecticut, the receipt of which is hereby acknowledged, do sell, assign, transfer, and set over to the soid Samuel Fessenden one-half of all my right, title, and interest in and to said invention, and one-half of any and all rights which may be acquired by said letters patent, for which application, as aforesaid, has been made, and the half of all profits, advantage, gain, or emolument of every nature and kind which may by me in said invention and by said letters patent and said application be acquired.

42 The application for said patent is to be prosecuted by the said Fessenden at his sole expense and without unnecessary delay.

Giving and granting unto the said Samuel Fessenden the one-half as aforesaid of said invention, and the advantages which accrue therefrom as aforesaid, to have and to hold the same to him, his heirs and assigns forever, to his and their only use and behoof, and to the fulfillment hereof, I do bind myself, my heirs and assigns forever.

5c. 5c. J. W. C. March 31st, 1868. 5c. 5c.

In testimony whereof, I have hereunto set my hand and seel, this 31st day of March, A. D. 1868.

J. W. COCHRANE. [L. S.]

In presence of—
R. L. BALDWIN,
JOHN BISSELL.

Recorded, Dec. 31st, 1869.
Ex'd, A. E. B.

EXHIBIT ASSIGNMENT NO. 2.

J. 17th, p. 450.

Whereas John W. Cochran, of the city, county and State of New York, is the inventor of a certain new and useful improvements in breech-loading fire arms, consisting—

1st. Of a breech-loading gun in which a hinged breech block is used, and which has attached to and carried with it an ejector for withdrawing the cartridge shell.

2nd. The combination and arrangement of the hinged breech block and lever, when said parts are construed and arranged for operation in a breech-loading gun.

3rd. The combination and arrangement in a breech-loading of the breech block, lever and link, as substantially set forth, and more particularly described in his petition to the Commis-

43 sioner of Patents, praying for letters patent of the United States, for said inventions, dated at said New York, the 18th day of March, A. D. 1868, and was the owner of all right, title and interest therein; and whereas he has made application, in conform-

ity with the laws of the United States of America, for letters patent for such invention;

And whereas the said John W. Cochran, on the 31st day of March, A. D. 1868, sold, assigned, transferred and set over to me, Samuel Fessenden, one-half of all his right, title and interest in and to said invention, and one half of any and all rights which may be acquired by said letters patent, for which application as aforesaid has been made, and the half of all profits, advantage, gain or emolument of every nature and kind which may by him in said invention and by said letters patent and said application be acquired:

Now, know all men by these presents, that for and in consideration of the sum of one dollar paid to me by Richard L. Baldwin, of the city, county, and State of New York, the receipt of which is hereby acknowledged, do sell and assign unto the said R. L. Baldwin, the one-half of all my right, title and interest in and to said invention, and one-half of any and all rights which I may have or acquire by said letters patent, for which application as aforesaid has been made, and the half of all profits, advantage, gain, or emolument of every nature and kind which may by me in said invention and by said letters patent and said application be acquired.

Giving and granting unto the said Richard L. Baldwin the one-half of my interest as aforesaid of said invention, and the advantages which accrue therefrom as aforesaid.

To have and to hold the same to him, his heirs and assigns forever, to his and their only use and behoof, and to the fulfillment hereof, I, Samuel Fessenden, now of Stamford, Fairfield county, Connecticut, do bind myself, my heirs and assigns.

44 In witness whereof, I have hereunto set my hand and seal, the 16th day of February, 1869.

SAMUEL FESSENDEN. [L. S.]

In presence of—

W. C. STROBRIDGE, JR.
JOSHUA B. FERRIS.

Recorded Feb. 9th, 1874.

EXHIBIT ASSIGNMENT No. 3.

Assignment.

K[15], p. 398.

Whereas I, John W. Cochran, of the city, county, and State of New York, have invented a new and useful improvement in breech-loading guns, for which I made application for letters patent of the United States May 6th, 1868;

And whereas Samuel D. Hovey, of Brooklyn, Kings county, State of New York, for a valuable consideration, has agreed to purchase from me an undivided one-tenth of all the right, title, and interest which I have, or may have, in and to the said invention, in consequence of the grant of letters patent therefor, and has paid to me, the said John W. Cochran, the sum of one hundred dollars, the receipt of which is hereby acknowledged:

Now, this indenture witnesseth, that, for and in consideration of the said sum to me paid, I have assigned and transferred, and do hereby assign and transfer, to the said Samuel D. Hovey an undivided one-tenth of all my right, title, and interest in said invention, as fully set forth and described in the specification which I have prepared and executed, preparatory to the obtaining of letters patent therefor, the same to be held and enjoyed by the said Samuel D. Hovey for his own * * * and behoof, and for the use and behoof of his legal representatives, to the full end of the term
45 for which said letters patent may be granted, as fully and entirely as the same would have been held and enjoyed by me if this assignment and sale had not been made.

And I further agree to pay to the said S. D. Hovey, or his legal representatives, on demand, one-tenth of all profits, license fees, and benefits which I shall receive under and on account of said letters patent.

In testimony whereof, I hereunto set my hand and
5 J. W. C. 5 affix my seal, this nineteenth day of April, A. D.
Ap'l 19, 1872.
5 1872. 5 J. W. COCHRAN. [SEAL.]

Sealed and delivered in presence of—
HENRY EDWARDS.

Recorded April 20, '72.
Ex'd: K. K.

EXHIBIT ASSIGNMENT No. 4.

Assignment.

Whereas John W. Cochran, of the city, county, and State of New York, has invented a new and useful improvement in breech-loading guns, for which he made application for letters patent of the United States May 6th, 1868;

And whereas I, Samuel D. Hovey, of Brooklyn, Kings county, State of New York, have received from John W. Cochran an undivided one-tenth interest in said invention and application by an assignment dated April nineteenth, A. D. 1872;

And whereas the United States Rifle and Cartridge Co., of New York, has agreed to purchase from me all the right, title, and interest which I have, or may have, in and to the said invention, in consequence of the grant of letters patent therefor, and has paid to me, the said Samuel D. Hovey, one share of stock in said company, and also the sum of one dollar, the receipt of which is hereby acknowledged:

46 Now, this indenture witnesseth, that, for and in consideration of the said sum and stock to me paid, I have assigned and transferred, and do hereby assign and transfer, to the said The United States Rifle and Cartridge Company all my right, title, and interest in said invention, as fully set forth and described in the specification, which were prepared and executed preparatory to the obtaining of letters patent therefor.

The same to be held and enjoyed by the said United States Rifle and Cartridge Co. for its own use and behoof, and for the use and behoof of its legal representatives, to the full end of the term for which said letters patent may be granted, as fully and entirely as the same would have been held and enjoyed by me if this assignment and sale had not been made.

S. D. H. April 27, 1872. 5c.

In testimony whereof, I hereunto set my hand and affix my seal, this — day of April, A. D. 1872.

SAMUEL D. HOVEY. [SEAL.]

Sealed and delivered in presence of—
FREDERIC H. BETTS.

Recorded May 17, 1872.
Ex.: J. A. W..

EXHIBIT ASSIGNMENT No. 5.

Assignment.

F[15], p. 204.

Whereas I, John W. Cochran, of the city, county, and State of New York, did obtain letters patent of the United States of America for certain improvements, which letters patent bear date and are numbered and known as follows:

1. Lubricating car axles, issued May 25, 1858, numbered 20331.

47 2. Mode of connecting the sections of metallic tunnels, issued March 23, 1858, number 19685.

3. Lubricating car axles, issued June 1st, 1858, numbered 20406.
4. Lubricating car axles, issued Oct. 5th, 1858, numbered 21652.
5. Car axle boxes, issued Nov. 2, 1858, numbered 21943.
6. Revolving fire-arm, issued Dec. 28, 1858, numbered 22412.
7. Projectiles for rifled ordnance, issued Nov. 8th, 1859, numbered 26016.
8. Projectiles for rifled ordnance, issued Nov. 8, 1859, number 26017.
9. Breech-loading and other fire-arms, issued Nov. 29th, 1859, number 26256.
10. Projectiles for ordnance, issued Nov. 21, 1859, number 25951.
11. Projectiles for rifled ordnance, issued Dec. 6th, 1859, number 26337.
12. Cartridge for fire-arms, issued March 13, 1860, number 27428.
13. Projectiles, issued Sept. 25th, 1860, number 30123.
14. Percussion fuse for explosive shells, issued Jan. 6, 1863, number 37275.
15. Percussion fuse for explosive shells, issued Feb. 17, 1863, number 37675.
16. Breech-loading fire-arm, issued July 7, 1863, number 39120.
17. Revolving fire-arm, issued Nov. 10, 1863, number 40553.
18. Breech-loading fire-arm, issued Dec. 22, 1863, number 40992.
19. Breech-loading fire-arm, issued April 4, 1865, number 47088.

20. Breech-loading fire-arm, issued April 25, 1865, number 47396.

21. Cartridge extractor for breech-loading fire-arms, issued Feb. 20, 1866, number 52679.

22. Revolving fire-arms, reissued March 27, 1866, number 2211.

48 23. Chair, sofa, and car seats, issued May 22, 1866, number 54863.

24. Packing projectiles for rifled ordnance, issued July 31, 1866, number 57712.

25. Breech-loading fire-arm, issued March 26, 1867, number 63217.

26. Fixed ammunition holder for cartridge boxes, issued March 17, 1868, number 75625.

27. Fixed ammunition holder for cartridge boxes, issued March 17, 1868, number 75626.

28. Breech-loading fire-arm, issued March 17, 1868, number 75627.

29. Breech-loading fire-arms, issued Jan. 5, 1869, number 85645.

32. Insulated bolt for railroad rails, issued Jan. 10, 1871, number 110,826;

And whereas I, the said John W. Cochran, did make applications for letters patent of the United States, said applications having been filed on the following dates in the United States Patent Office, and being known by the following descriptive names, to wit:

1. Application, filed May 6th, 1868, for improvement in breech-loading guns.

2. Application, filed Sept. 30th, 1870, for improvement in spring bed bottoms, allowed Sept. 3, 1870.

3. Application, filed —, 1871, for improvement in cartridges (lubricating, etc.), allowed Nov. 14, 1871.

4. Application for improvement in wad for cartridges, filed Jan. 30, 1872; rejected Feb. 27, 1872;

And whereas The United States Rifle and Cartridge Company, a corporation duly chartered under the laws of the State of New York, is desirous of acquiring the sole ownership, title, control, and interest therein:

Now, therefore, this indenture witnesseth that, for and in consideration of five thousand shares of the capital stock of said United States Rifle and Cartridge Co., of the par value of five hun-

49 dred thousand dollars, to me in hand paid, the receipt of which is hereby acknowledged from said company, and in further consideration of the sum of one dollar to me in hand paid by said company, the receipt of which is hereby acknowledged, I have assigned, sold, and set over, and do hereby assign, sell, and set over, unto the said The United States Rifle and Cartridge Company all the right, title, and interest which I have in and to the above-named inventions, patents, and applications for patents, the same to be held and enjoyed by the said United States Rifle and Cartridge Company for its own use and behoof, and for the use and behoof of its legal representatives, to the full end of the term for which said letters patent are granted, and for any and all extensions thereof,

and for the full term for which patents may be issued for said applications, as fully and entirely as the same would have been held and enjoyed by me if this assignment and sale had not been made.

5 J. W. C., April 27, 1872.

In testimony whereof, I hereunto set my hand and affix my seal, this 27th day of April, A. D. 1872.

J. W. COCHRAN. [SEAL.]

Sealed and delivered in presence of—
FREDERIC H. BELL.

Recorded April 29, 1872.
Ex: J. A. W.

EXHIBIT ASSIGNMENT NO. 6.

U[15], p. 349.

Know all men by these presents, that whereas one John W. Cochran, now or formerly of the city, county, and State of New York, was or claimed to be the inventor of certain new and useful improvements in breech-loading fire-arms;

And whereas said Cochran had made application for letters patent of the United States for such inventions and improvements;

50 And whereas the said Cochran did, under his hand and seal, by instrument bearing date the 31st day of March, 1868, sell and assign unto Samuel Fessenden, of Stamford, Connecticut, one-half of his, the said Cochran's, right, title, and interest in and to said inventions, and of any and all rights which might be acquired by said letters patent, as will more fully appear on reference to said instrument, which is hereby recited and made part of these presents, for a more full understanding of the same, the said instrument being recorded in the office of the Commissioner of Patents, in book H[12] at page 374;

And whereas by instrument bearing date the 16th day of February, 1869, the said Samuel Fessenden did assign and transfer to Richard L. Baldwin, then of the city, county, and State of New York, now of Milford, Connecticut, the one-half of the rights, titles, and interests acquired by him, said Fessenden, by assignment from said Cochran, to which second-named instrument reference is also made for a more full understanding of the same;

And whereas letters patent of the United States did afterwards issue to the said John W. Cochran for the whole or a part of said inventions and improvements, said letters patent bearing date May 7th, 1872, and numbered 126,446:

Now, therefore, for and in consideration of one dollar paid to us, the said Samuel Fessenden and Richard L. Baldwin, by E. Remington & Sons, a corporation organized under the laws of the State of New York, having its principal place of business at Ilion, in said State, the receipt of which is hereby confessed and acknowledged, we do hereby sell, assign, transfer, and set over to the said E. Remington & Sons all our right, title, and interest in and to said inventions, and all rights which we have at law or in equity in and to said

letters patent, and the rights, privileges, and interests thereby granted or secured, and all the rights, titles, and interests transferred and assigned to us, or either of us, by said assignment from
51 said Cochran, mediately or immediately, as though the said assignment had originally been made to the said E. Remington & Sons, instead of the said Fessenden.

To have and to hold the same to them, the said E. Remington & Sons, their successors and assigns, forever, to their only use and behoof.

In witness whereof we have hereunto set our hands and seals this tenth day of September, 1872.

[L. S.] SAMUEL FESSENDEN.
[L. S.] RICH'D L. BALDWIN.

In presence of—
ALEXANDER CAMPBELL,
JOHN B. McDONNELL,
Witnesses to signature of Samuel Fessenden.
C. H. POND,
Witness to signature of Rich'd L. Baldwin.
FREDERIC HOWLDEN,
Witness to signature of Rich'd L. Baldwin.

5 5
E. R. & Sons, Sept. 10, 1872.
5 5

Recorded Sept. 25th, 1872.
Ex: E. H.

EXHIBIT LICENSE.

I[16], p. 211.

Memorandum of agreement between The United States Rifle and Cartridge Company, a corporation duly organized and doing business under the laws of the State of New York, party of the first part, and E. Remington & Sons, a corporation organized and doing business under the laws of the State of New York, party of the second part.

In consideration of one dollar to each of the said parties in hand paid by the other, the receipt whereof is hereby acknowledged, the said parties do covenant and agree as follows:

First. The party of the first part hereby grants to the said
52 party of the second part, during the term of said letters patent, or so long as the party of the second part duly performs all of the conditions and agreements herein set forth, the exclusive license to make, use, and sell the invention and inventions described in the letters patent granted to John W. Cochran for an improvement in fire-arms on the 7th day of May, 1872, No. 126,446, or any reissue thereof, upon the terms and conditions hereinafter mentioned.

Second. Said party of the second part agrees to pay the party of the first part the following sums for and upon each and every one of the guns, rifles, systems, pistols, or other fire-arms, embodying or containing any of the invention or inventions described and claimed in said letters patent, which shall be manufactured and sold or otherwise disposed of by the party of the second part or their servants,

agents, or employees, viz., twenty cents from May 7th, 1872, to January 27th, 1880, and twenty-five cents from January 27th, 1880, to May 7th, 1889.

Third. Said party of the second part shall, upon the first Monday of January, April, July, and October of each and every year, or within five days thereafter, make out, under the oath of their president or secretary, or their employee having the best means of knowing the truth thereof, and transmit to the party of the first part a detailed account of all the fire-arms, &c., containing or embodying any of said invention or inventions, which shall have been manufactured and sold or otherwise disposed of, as aforesaid, after the date of this contract and not included in the last preceding account. Said account shall specify the kinds of fire-arms by their best known names and their numbers when numbered.

Fourth. Payments under this contract shall be made on the quarter days named, or within five days thereafter, said payments to be made to the treasurer of the party of the first part at the city of New York.

53 Fifth. It is understood that if the party of the second part shall fail to manufacture and sell or otherwise dispose of, upon the terms aforesaid at cost, 40,000 guns, pistols, or other fire-arms in each year, or make payment for at least that number, the said party of the first part may, by notice in writing, revoke this license and put an end to this agreement.

Sixth. Said party of the second part agrees not to promote or encourage in any way litigation against the said letters patent or its reissues.

Seventh. In case any person, persons, corporation, or corporations shall infringe upon said letters patent during the term of this agreement, or shall heretofore and since the date of said letters patent have infringed upon the same, said party of the second part shall prosecute for said infringements, at their own expense, with due diligence, either at law or in equity, and shall endeavor to restrain further infringements thereof, and confine the manufacture, sale, and disposal of fire-arms containing said inventions to themselves, and in such case shall be entitled to receive and retain all the proceeds or recoveries in said suits or any settlements or license fees received or secured thereby; but in case said party of the second part shall fail so to do, after thirty days' written notice to that effect, said party of the first part shall be entitled, at their own expense, to prosecute or continue the prosecution of said infringement or infringements, and in that event shall be entitled to receive and retain all proceeds and recoveries in said suits or any settlements or license fees received or secured thereby.

If in any such litigation the name of the party of the first part shall be used by the party of the second part, a good and sufficient bond of indemnity for costs shall be forthwith delivered to said party of the first part.

Eighth. It is agreed that this license is personal to the party of the second part, and is not to be assigned, transferred, or other-
54 wise disposed of, or shared in any way, in whole or in part, without the written consent of the party of the first part.

Ninth. Said party of the second part agrees to exercise all due diligence in manufacturing, selling, and disposing of fire-arms containing said invention or inventions, and fully supplying the market, American or foreign, therewith.

Tenth. In case said party of the second part shall make default in any of the agreements herein contained, and said default shall continue for twenty days after written notice of the same from the party of the first part calling attention to the particular default, then and in that event the party of the first part may, at its option, terminate this license and put an end to this agreement.

Eleventh. In case said letters patent shall be declared void by any Federal court in any suit of which the party of the first part shall have had written notice from the commencement, and shall had had full opportunity to prosecute or defend, then and in that event the party of the second part may at any time, on written notice to that effect, cease paying license fees for all fire-arms sold or disposed of after the date of said notice, and thereupon the party of the second part shall be relieved from the payment of all such license fees until such time, if ever, as said decree of said court shall be reversed by the court of final resort. That if, by the decree of the court of final resort, said decree shall be finally affirmed, all rights under this contract shall thereupon cease and determine; but in case said decree shall be reversed and said letters patent declared valid by the court of final resort, then all payments which shall have been in the mean time suspended shall thereupon, upon written notice, become due and payable.

Twelfth. In case at the time of the expiration of said letters patent said party of the second part shall have on hand any fire-arms, the same shall be paid for as aforesaid as soon as sold or otherwise disposed of.

55 In witness whereof the said parties hereto have hereunto caused their corporate seals to be affixed, and these presents to be subscribed by their proper officers, duly authorized thereto, this 31st day of December, A. D. 1872.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY,
By SAMUEL D. HOVEY, *President.*
E. REMINGTON & SONS,
By P. REMINGTON, *Vice-Pres't.*

In presence of—
E. ROCHE,
GEORGE A. MERCER,
As to execution by E. Remington & Sons.
WM. MYERS HOES,
As to The United States Rifle and Cartridge Company.
C. H. POND,
As to U. S. R. & C. Co.

STATE OF NEW YORK, }
City and County of New York, } *ss:*

On this 31st day of December, A. D. 1872, before me, personally

came Samuel D. Hovey, president of the United States Rifle and Cartridge Company, with whom I am personally acquainted, who, being by me duly sworn, said: That he resided in the city of Brooklyn, county of Kings, State of New York; that he was the president of the United States Rifle and Cartridge Company; that said company has no corporate seal; that he signed his name to the foregoing agreement and acknowledged the same by order of the board of directors of said company, as its president. And I further certify that said Samuel D. Hovey acknowledged to me that he exe-
56 cuted said agreement, as president of the company, for the purposes therein mentioned.

[SEAL.] WM. MYERS HOES,
Notary Public, N. Y. City and Co.

COUNTY OF HERKIMER, *ss:*

On this 30th day of December, in the year eighteen hundred and seventy-two, before me, personally came Philo Remington, the vice-president of E. Remington & Sons, with whom I am personally acquainted, who, being by me duly sworn, said: He resided at Ilion, N. Y.; that he was the vice-president of said corporation; that he knew the corporate seal of the same; that the seal affixed to the within instrument was such corporate seal; that it was affixed by order of the board of trustees of said corporation; and that he signed his name thereto by the like order as vice-president of said E. Remington & Sons.

THOS. RICHARDSON,
Notary Public.

Recorded Jan. 10, 1873.
Ex'd: M. J. J.

57 *Testimony in Rebuttal taken on the part of the Complainants in above-entitled suit, pursuant to the 67th Rule in Equity, as amended, before me, W. C. Witter, Examiner.*

United States Circuit Court, District of Connecticut.

THE UNITED STATES RIFLE AND CARTRIDGE CO. and E. REMINGTON & SONS
vs.
THE WHITNEY ARMS COMPANY, ELI WHITNEY, President, and ELI WHITNEY.

NEW YORK, *February* 22, 1876—2 p. m.

Parties met pursuant to adjournment.
Present: Counsel for the respective parties.

EDWARD S. RENWICK, being recalled on the part of the complainants, in answer to questions proposed to him by THOMAS RICHARDSON, Esq., deposes and says as follows:

1 Q. Have you been already examined as a witness in this case?

58 A. I have.

2 Q. Have you examined letters patent granted to A. D. Perry, dated November 28, 1854, number 12001? And if you have, state whether you understand the same.

A. I have examined a certified Patent Office copy of the letters patent to Perry, referred to in the question, and I believe that I understand the contents thereof and the construction and operation of the fire-arm represented and described therein.

3 Q. Compare the combination recited in the first claim of the Cochran patent with the description and representation of the fire-arm of said Perry patent, and state whether you find the combination of the said first claim of the Cochran patent described or represented in the said Perry patent, and give your reasons for any conclusion you may express.

A. Upon making the comparison required by the question I find that the combination of the said Cochran first claim is neither represented nor described in the said Perry patent. My reasons for this opinion are as follows: As I understand the said Cochran patent, the combination of the said first claim is not every combination of every kind of a breech block or breech-closing piece with every kind of a device for locking or holding the same in place, but is a particular combination of a particular kind of breech block (having certain peculiarities of construction) with a particular kind of brace or holding device, having a particular construction and mode of operation, and combined in a particular manner with the breech block. The peculiarities of the breech block, which forms one member of the Cochran combination, are that it is pivoted so as to move or swing around a fixed point, and that it is pivoted to the fire-arm so that it may swing backward and downward around the fixed point, which is the axis of the pivot on which it swings.

59 The peculiarities of the holding device or brace are that it is a pivoted brace, or one constructed to turn on a pivot; that it is pivoted to the frame of the fire-arm in contradistinction to being pivoted to a movable part thereof; that the pivoting to the frame is in the rear of the breech block in contradistinction to being in advance thereof or nearer the muzzle of the fire-arm than the breech block, and that it is arranged to swing upward in unlocking the breech in contradistinction to swinging downward at that time, and consequently that the brace must swing downward in locking the breech.

The said two parts (breech block and brace) are so combined that the brace performs the duplex function of locking the breech block in its place and of also acting as an abutment or brace which sustains the shock of the explosion by holding the breech block in its position and preventing it from being moved under that shock.

Now, upon examining the said Perry patent I find that it contains a swinging breech block which has substantially the same mode of operation as the swinging breech block of the said Cochran claim; but I also find that the said Perry patent does not describe or suggest any device which corresponds with the brace which forms the second member of the said Cochran combination. Thus,

in the said Perry patent I find that there is a locking piece of some kind, but that it is substantially different from the brace of the said Cochran patent in the respect that it is pivoted to the movable breech piece or breech block, instead of being pivoted, as required by the said Cochran patent, to the frame of the fire-arm; also, that it is substantially different from the said Cochran brace in the respect that it is arranged to swing downward in unlocking the breech instead of upward, and upward in locking the breech instead of downward.

4 Q. State whether, owing to the fact that the brace in the Perry patent is pivoted to the breech-closing piece instead of being pivoted to the frame, and also that it moves downward and forward in unlocking the said breech piece, the Perry combination is practically capable of being modified so that the brace can be operated by a lever projecting above the lock frame, or, in other words, of being operated by what is termed top action.

A. I think that it is possible to modify the Perry fire-arm by arranging a lever with its end projecting upward above the lock frame for the purpose of operating the brace of that fire-arm; but in my opinion the construction that would be obtained by such an arrangement would be so objectionable that it would possess no value for practical uses.

There are two modes which occur to me in which a lever might be arranged for such a purpose; in one of them the lever would project upward directly from the brace, and in this case a considerable portion of the breech block would have to be cut away in order to give room for the lever.

The frame of the fire-arm in the rear of the breech block also would have to be cut away so as to form a large slot for the lever to play in, because the lever would not only have to be moved sufficiently to unlock the breech block, but, inasmuch as it would be pivoted to the breech block, it would be carried by the breech block in the movements of the latter, and its extent of movement would therefore be great. With a lever constructed as I have assumed the weakening of the breech block and the large opening in the lock frame, as well as the great projection of the lever above the lock frame, would be such serious objections in the practical use of the fire-arm as to render it, in my opinion, unsuited for practical purposes. In the other mode which occurs to me the pivot of the lever would remain where it is in the drawing of the Perry patent, but the handle of the lever, instead of extending back from its pivot, would have to extend up and at one side of the lock frame instead of beneath it. In this arrangement the great extent of movement which would have to be imparted to the lever, the obstruction which it would afford to manipulating the hammer, and the great projection which it would have to have above the lock frame in order that it might be operated conveniently, would be such serious objections as to render the arrangement practically valueless.

5 Q. State whether the Cochran organization is easily capable of such modification as is described in the last preceding question.

A. It is; and I have seen several modifications of it which proved the fact, one of them being the Whitney fire-arm, and another of them being the Remington fire-arm. I have also seen several other such modifications, the names of which do not now occur to me. The reasons for the facility of modification being, first, that inasmuch as the brace is pivoted to the lock frame, which is stationary, it has to be moved only enough to carry it out of the way of the bearing shoulder of the swinging breech block, instead of having to be moved an additional distance with some movable part of the breech mechanism; second, that inasmuch as the brace swings upward and backward in unlocking, and is also pivoted in the rear of the breech block, it can be moved out of the way of the breech block, so as to unlock the same by a very small angular movement on its pivot, instead of having to be moved through a large portion of its circle for that purpose.

6 Q. Have you examined a certified copy of the letters patent granted to A. E. Burnside, dated March 25th, 1856, No. 14491? And if you have, state whether you understand the same.

A. I have examined a certified copy of said letters patent, and believe that I understand the same.

7 Q. Compare the combination recited in the first claim of the Cochran patent with the description and representation of the fire-arm of said Burnside, and state whether you find the combination of the said first claim of the Cochran patent described or represented in the said Burnside patent, and give your reasons for any conclusion you may express.

62 A. Upon making the comparison required by the question, I find that the combination recited in the first claim of the said Cochran patent is neither represented nor described in the said Burnside patent. My reasons for this opinion are as follows: Referring to the statement of my understanding of said Cochran combination, as given in my answer to question three, I find that the Burnside patent does not describe or suggest a breech block, which is substantially the same as that of the said Cochran patent, for whereas the latter is constructed so as to swing around a pivot, every part of it being rigidly connected with that pivot, so as to move in circular curves, of which the pivot is the center, the breech block of the Burnside patent is constructed to slide longitudinally of the fire-arm, as well as to swing upon a pivot, and as a consequence of this peculiar construction of the Burnside breech block a material portion of it, in fact that portion which sustains the greater part of the shock of the explosion, and which is called in the patent the breech pin or cone seat, must be slid forward for unlocking before it can be swung upon the pivot, and must be slid backward for locking after the swinging motion upon the pivot has been completed, a mode of operation which is substantially different from that of any part of the Cochran combination. I further find that the said Burnside gun does not contain any brace which is combined with a swinging breech piece, as the Cochran brace is, or that the swinging breech piece is supported during firing against the shock of the explosion by a movable device of any kind whatever.

Thus, in the Burnside patent, the sliding breech pin, before referred to by me, is constructed with a curved butt, which "is curved from a center within the axis of the barrel, and is made to bear upon a seat" (consisting of a portion of the fixed lock frame), "a small portion of which is correspondingly curved a short distance above and below the prolongation of the axis of the barrel." By reason of this con-
63 struction of the butt of the breech-pin and the seat, a portion of the said seat underlaps the butt of the breech-pin, and prevents it from being moved downward by any force, so long as the said butt remains in contact with its seat; moreover, as the breech-pin is constructed to slide, the shock of the discharge tends to force it violently into the curved seat; hence, as the patent states, "the discharge is thus caused to retain the breech-pin or chamber in its firing position, as it cannot be withdrawn therefrom until the movable cone-seat or breech-pin be advanced into the position shown in Fig. 2" of the drawings of the patent; the other portion of the breech-piece, namely, the tubular part, into which the cartridge is inserted, and which receives a portion of the shock of the explosion, is held from moving backward in part by the pivot on which it turns, but mainly by the engagement of the butt of the breech-pin in its curved seat; this portion, however, is the chamber of the fire-arm, and does not correspond with any movable part of the swinging breech-piece of the Cochran combination. Inasmuch as the swinging breech-pin of the Burnside fire-arm is constructed to slide longitudinally in the manner I have described, and is held in place during the discharge by being seated directly against the lock-frame, instead of being abutted against a pivoted brace constructed and operating like that of the Cochrane combination, the said Burnside patent does not contain the said Cochrane combination. In making the foregoing answer I have takin into consideration the fact that there is in the Burnside gun a turning or pivoted piece designated by the letter H, the upper portion of which is constructed to turn upward and backward when the breech is to be opened for loading, but this piece, as truly described in the Burnside patent, is "a bolt" or locking-piece, whose office is to hold the breech lever and the parts connected with it from accidental displacement by forces other than the discharge, and is a means for additional
64 security. It differs substantially from the brace of the Cochran combination in the respect that it does not sustain any portion of the shock of the explosion, and does not act as a brace to brace or hold the breech-pin against such shock. In fact, the more violent the explosion in the Burnside gun the more forcibly is the sliding breech-pin pressed into its curved seat in the lock-frame, and the less possibility is there of any portion of the strain of the explosion being transmitted to the bolt H.

8 Q. Please look at the model now shown you, marked Burnside model, and state whether the same correctly represents the structure described in the Burnside patent.

A. Upon examining the model I find that it is a substantial representation of parts of the gun described in the Burnside patent, but that it does not appear to have been made with nicety, as there is a

considerable seam left between the butt of the sliding breech-pin and its curved seat in the lock-frame, so that the model in its present condition is not as well fitted as it should be to represent exactly the operation of the Burnside gun. The model also does not show the central slot in the curved seat, which is represented by one of the dotted lines in Fig. 1, at the part indicated by the letter T.

9 Q. You have stated that a portion of the seat in the Burnside fire-arm underlaps the butt of the breech-pin and prevents it from being moved downward by any force so long as the said butt remains in contact with its seat. Please mark upon the said model the underlapping portion of the seat to which you then referred.

A. I place the letter *a* upon the underlapping portion of the seat to which I then referred.

10 Q. In the Burnside gun, as shown in the Exhibit Burnside Model, state whether there is a solid stationary rear support in the line of fire.

A. There is; such solid rear support being the fixed curved
65 seat of the lock-frame upon which the curved butt of the barrel is made to bear during the discharge.

11 Q. Suppose that in the Burnside gun the bolt H were entirely removed, could the breech closing piece by any possibility be blown open by the shock of the discharge?

A. Assuming that the breech pin or cone-seat was put in place before the discharge, the breech closing piece could not by any possibility be blown open by the discharge, because the more violent the discharge the more forcibly and solidly would the cone-seat or breech pin be forced into its curved seat.

12 Q. Is there not a wide and marked difference known and recognized in the art between fire-arms having a solid stationary rear support for a movable breech piece in the line of fire, and those in which the breech closing piece is sustained or supported against the shock of fire by a movable support not in the line of fire?

A. There is.

Examination adjourned to Wednesday, Feb. 23d, 1876, at 10.30 a. m.

NEW YORK, *Feb.* 23, 1876—10.30 a. m.

Parties met pursuant to adjournment.

Present: Counsel for respective parties.

The witness, E. S. RENWICK, being further examined, deposes and says, as follows:

13 Q. Please explain a little more fully what you mean when you say, in your answer to Q. 7, that the office of the bolt H, in the Burnside arm, is to hold the breech lever, and the parts connected with it, from accidental displacement by forces other than the discharge.

A. In fire-arms, in which a lever is used at the under side
66 of the stock, for the purpose of operating the breech block, it is customary to have a catch of some kind to engage with the lever when it is brought up against the stock, so as to hold it there, and consequently to hold the parts connected with it in their places,

so that if at any time the operator should put the fire-arm out of his hands the lever would not be liable to drop out of its place by gravitation, or to be pushed out of its place by accidental contact with some obstacle. Various catches for this purpose have been used, some having the form of a spring catch engaging with the end of the lever, some having the form of a sliding bolt, and some being turning catches. Now, in the Burnside arm, which has a lever beneath the stock, if the parts are constructed to move freely, or become worn so as to move in that manner, the lever would tend to fall by its own weight, or would be easily displaced when not held by the hand, except during the discharge, hence it was important to use some kind of a catch or lock bolt to hold the lever from accidental displacement at other times than when the discharge is taking place. The turning bolt H accomplishes this purpose, but, as I have before stated, has no effect in holding the breech pin or chamber during the discharge, because at that time those parts are held firmly in their places by the engagement of the convex curved butt of the breech pin in the concave curved seat of the lock frame, the force of the discharge securing the rigidity of the engagement.

14 Q. Please examine Cross-questions 131, 132, 133, and 134, propounded to Mr. Whitney, to be found on page 85 of the defendant's printed record, and his answers thereto, and indicate whether you concur in the conclusions of Mr. Whitney as expressed in his said answers, and, if not, give your reasons therefor.

A. I have examined the questions and answers referred to in the question, and do not agree with Mr. Whitney in the conclusions expressed by him. In order that I may explain my reasons, I
67 will make a sketch of the parts of the fire-arm, and will refer to it in giving my answer. (Sketch put in evidence, and marked "Complainant's Exhibit, Renwick Sketch, W. C. W., Ex'r.")

In this sketch A indicates the stock or lock frame of the fire-arm, and B the barrel. D is the movable chamber, and F is the breech pin, which is constructed to slide longitudinally of the breech in the directions indicated by the arrows W and X. The curved line *b c* represents the convex curved butt of the breech pin F, and the curved line *c s* represents the concave curved seat in the stock or lock frame. In order that I may make my explanation more clear I have drawn the parts with the breech pin and chamber not quite raised to their positions for firing, and with the breech pin not quite slid back into its seat *c s*. The patent describes that "the rear of the movable cone seat or breech pin is curved from a center within the axis of the barrel, and is made to bear upon a seat which is correspondingly curved a short distance above and below the prolongation of the axis of the barrel;" and in consequence of this construction the portion of the said curved seat which is below the prolonged axis of the barrel, and which is indicated in my sketch by the letter *a*, acts as an inclined plane, up which the curved butt of the breech pin F is compelled to move whenever the breech pin F is forced back in the direction of the arrow *w* by the shock of the discharge acting against its front end. Hence if the parts should be slightly displaced at the time of the discharge, as they are represented to be

in my sketch, the shock of the discharge acting in a backward direction upon the front end of the breech pin F would force the curved butt of that breech pin to slide upward upon the curved incline at *a*, and consequently both the breech pin F and the breech D, in which it slides longitudinally, would be compelled to turn upward upon the pivot *i* until the butt of the breech pin was
68 seated firmly and centrally in its curved seat *e s*, which would take place when the longitudinal axis of the breech pin and chamber corresponded with the longitudinal axis of the barrel B. The force with which the breech pin F would be raised would depend in part upon a greater or less inclination of the curved incline at *a*, but this force would be magnified by the leverage obtained by reason of the position of the pivot *i* relatively to the center of the front end of the bore of the chamber D on the one hand and to the incline at *a* on the other hand. These two distances are represented in my sketch approximately by the dotted lines *h i*, *s i*. Now, inasmuch as the arm of the lever, represented approximately by *s i*, is much greater in length than the arm of the lever, represented approximately by the line *h i*, the proportionate lengths of these two arms if the parts be made in the same proportions as the drawings of the patent, being rather more than three to one, it follows that the force with which the breech pin and breech are raised by the shock of the explosion is magnified in the proportion of rather more than three to one by the leverage obtained by pivoting the chamber at the point *i* below the barrel. Hence I cannot agree with Mr. Whitney's conclusion, as there is no doubt in my mind that the action of the curved seat for the breech pin taken in connection with the fact that the breech block is hung below the line of fire, allows the recoil at the time of discharge to have a powerful lever action on the breech block to close it instead of to open it. It seems to me that Mr. Whitney could have made the answer he did only from the omission to consider that very important part of the description of the patent before quoted by me, which states that the rear of the movable cone seat or breech pin is curved from a center within the axis of the barrel, and that the seat is correspondingly curved. I do not concur with Mr. Whitney's answer to the 132d cross-interrogatory, because the considerations above stated by me show that the statement in the 130th cross-question is correct. I agree with Mr.
69 Whitney's answer to the 133d Cross-question, so far as the word "Yes," but do not agree with the residue, as the considerations above stated by me show that such residue is incorrect; the error appearing to me to have arisen from the omission to consider the fact that the breech-pin *F* is not rigidly connected with the pivot, but is left free to be moved back by the force of the discharge in the direction indicated by the letter *w* in my sketch. I do not agree with Mr. Whitney's answer to the 134th Cross-question, as the above considerations stated by me lead to the positive conclusion that the heavier the charge, and the more violent the shock produced by its discharge, the more forcibly and positively will the breech-pin be seated in its curved seat in the rigid stock, or lock-

frame, and the less would be the chance of its being thrown downward during its discharge.

15 Q. Please examine the drawings of the Burnside patent, and explain the apparent difference that there is in the curvature of the seat for the breech-pin to rest in, in Fig. 1 and Fig. 2, of said drawings.

A. Fig. 1 represents a side view of the fire-arm with the breech closed, and with the internal outlines of the breech-pin, chamber, cam groove, and pin *a*, represented by dotted lines; while Fig. 2 represents a section of the parts of the fire-arm made at the longitudinal axis of the barrel. Hence Fig. 2 shows only the forms of the parts of the chamber, breech-pin, and seat, at or in the vicinity of the central line of the fire-arm, while the dotted lines in Fig. 1 show the forms of these parts at other places than the center of the fire-arm. It will be noticed that there is a projection from the lower part of the breech-pin and breech, as seen at *g*, Fig. 2, and in order that this projection may not interfere with the lower incline of the curved seat, the central portion of that seat appears to have been cut away, as represented by the short straight dotted line at *y*, Fig. 1, and the short straight line of *y f*, in Fig. 2. The portion thus cut away would form a shallow wedge-formed slot at the lower central portion of the seat, whose front view would be represented approximately by the square figure indicated by the letter *y*, which I have drawn upon the face of the seat in the Burnside model. If this slot were made in the model, and the slide or projection corresponding with *g*, Fig. 2, were made a little higher than it is, so that it would correspond more closely with the proportions of the drawing, the model would represent more exactly the forms of the parts shown at Fig. 2 in the drawing, and that there is no real discrepancy between that figure and Fig. 1.

16 Q. Please examine copy of the letters patent of Thomas Lee, dated April 27th, 1858, and No. 20073, and compare the combination recited in the first claim of the Cochran patent with the description and representation of the fire-arm of said Lee, and state whether you find the combination of the said first claim of the Cochran patent described or represented in the said Lee patent, and give your reasons for any conclusion you may express.

A. Upon making the examination required by the question, I find that the patent of Lee neither represents nor describes the combination of the first claim of the Cochran patent. It is, undoubtedly, true that there is described in the said Lee patent a breech piece which is constructed to swing backwards upon a fixed pivot, and which is substantially the same as the breech piece of the said Cochran combination; and it is also true that the said Lee breech piece is combined with a locking device of some kind, constructed to turn upon a pivot in the rear of the breech piece; but the said locking piece of the said Lee patent differs substantially in construction and arrangement from the brace of the Cochran combination; the former differs substantially from the latter in construction, in the respect that it is constructed with a curved projection which overlaps a solid portion

of the breech frame (upon which I place the figure 5 in the Lee
71 model) intervening between the said projection and the pivot of the locking-piece, so that the strain of the breech-piece is transmitted to the said solid portion of the lock-frame directly behind the breech of the fire-arm; whereas no such construction is found in the Cochran combination, and no similar construction could be used in connection with the Cochran combination; the locking-piece of the said Lee gun differs substantially in arrangement from the brace of the Cochran combination, in the respect that the former is so arranged as to swing downward and forward in unlocking the breech instead of upward, and to swing upward and backward in locking the breech instead of downward; in consequence of the peculiar arrangement of the brace of the Cochran combination it would be impracticable to construct it, and the breech-frame in the forms of the locking-piece and breech-frame of the Lee fire-arm, or of any similar forms; and the mode of operation of the locking-pieces of the two fire-arms are substantially different, not only in their mode of manipulation (which is the reverse of each other), but in the mode in which they operate to transmit the shock to the lock-frame. I say it would be impracticable to construct the Cochran brace and breech-frame, in the forms of the locking-piece and breech-frame of the Lee fire-arm, or of any similar forms, because if the attempt were made to construct them in that manner, inasmuch as the Cochran brace is arranged to swing upward for unlocking, the projection of the brace (corresponding in office with that of the Lee locking-piece) would have to be at its lower forward side, and the portion of the lock-frame with which such projection should engage would have to be in front and beneath it. A projection of the lock-frame in this position would be behind the swinging breech-block, and would prevent it from being opened, so that the attempt to construct the Cochran brace and lock-frame like the Lee
72 locking-piece and lock-frame would result in a fire-arm that would be impracticable.

I have said that the mode of operation of the locking-pieces of the two fire-arms are substantially different in the mode in which they operate to transmit the shock to the lock-frame, because the brace of the Cochran combination necessarily transmits the shock through its pivot, or through a portion of its substance further from the breech-piece than the axis of the brace pivot, it being impracticable on account of the peculiar arrangement of the brace, and in order that there may be nothing in the way of the breech-block to interpose any portion of the lock-frame between the pivot of the brace and the swinging breech-block. In the Lee fire-arm, by reason of the peculiar construction of the locking-piece and its arrangement to swing downward in unlocking, a portion of the lock-frame can be and is interposed between the projection of the locking-piece and its pivot, and consequently the strain is transmitted to the lock-frame without passing through the pivot of the locking piece, or any portion of the locking piece which is further from the swinging breech-block than its projection. In fact the drawing of the Lee patent shows the pivot 3 of the locking-piece of such small dimen-

sions that it would be practically useless to sustain the shock, and that it could not have been intended to do so, and the patent describes that the projection of the locking piece or its cam-shaped end 4 will pass over the part 5 of the rear of the mortise which the parts move (the part 5 being a solid part of the lock-frame), and the breech *d* will thus be sustained firmly in its place against the explosion. The parts of the Lee fire-arm are, therefore, substantially different from the Cochran combination, and are combined in a substantially different manner.

17 Q. Considering the present state of the art, would it be possible to apply a top action to the Lee organization so as to make a practically useful arm?

73 A. I cannot perceive any mode in which such action might be obtained.

18 Q. Is top action a desirable feature in fire-arms; if so, why?

A. In my opinion it is because, after the hand of the operator has been applied to raise the hammer, it is more convenient for him to open the breech by acting upon an instrument that is above the lock frame than it is for him to act upon an instrument which is beneath the lock frame. The former mode of operation also, with some forms of construction, of which the Cochran combination is the prototype, enables the breech to be opened by the same kind of manipulation as that employed to raise the hammer and without materially changing the position of the hand, thus rendering the manipulation of the fire-arm more simple.

19 Q. Is the organization which is so arranged that the supporting brace shall move upward and backward instead of downward and forward in the act of unlocking the breech-closing piece simply arbitrary and immaterial, or is it important and useful, and why?

A. It is not arbitrary and immaterial, but it is important and useful, for several reasons. In the first place it requires a much less amount of angular motion to free the breech piece when the brace is moved upward and backward for that purpose than when it is moved downward and forward. In the second place the former organization admits of a more convenient arrangement of the lever for moving the brace, and of a more convenient manipulation of the fire-arm, because the lever may be arranged above the lock frame, and may even be constructed in such manner as to be moved for unlocking by the same kind of manipulation as that employed to raise the hammer and without materially changing the position of the hand after the hammer has been raised.

74 20 Q. State what are the advantages, if any, in having the supporting brace other than the nose of the hammer.

A. The breech block itself may be made much smaller than it would have to be if the nose of the hammer were used as the supporting brace, because in the latter case there must either be a strong projection from the breech piece above the nose of the hammer or the breech piece must be made so large that a hole could be made in it for the nose of the hammer to engage in, and the loss of strength which is due to making such a hole must be made up by addition of material elsewhere. The hammer also may be made much

smaller than it would have to be if its nose were employed as the supporting brace, and the acting portions of the brace and of the shoulder of the breech block with which the brace engages may be arranged within the lock frame or thereabouts, and much closer to the centers of motion, thus reducing the bulk of the parts and making the fire-arm less cumbrous. The hammer and the supporting brace also may be made separate, so that each of the two members has only its own functions to perform.

NEW YORK, *Feb.* 24, 1876—10.30 a. m.

Parties met pursuant to adjournment.

Present: Counsel as before.

WM. C. HICKS, a witness of lawful age, produced on the part of the complainants, having been by me first duly cautioned and sworn to testify the truth, the whole truth, and nothing but the truth in the matter in controversy herein, and being examined by THOMAS RICHARDSON, Esq., of counsel for complainants, deposes and says as follows:

1 Q. What is your name, age, residence, and occupation?

75 A. William C. Hicks; I am forty-six years of age; I reside at Summit, New Jersey, and I am a civil and mechanical engineer.

2 Q. Please give a brief statement of the opportunities you have had of becoming acquainted with the different kinds of fire-arms which are and have been in use.

A. In the year 1851 I was employed at the armory of Samuel Colt, in Hartford, Connecticut, as draughtsman and assistant to Mr. Root, the superintendent. I remained in the employ of Samuel Colt, in various capacities, until early in the year 1855. On the 11th day of July of that year I was employed by the Volcanic Repeating Arms Company, of New Haven, as assistant superintendent of their armory. I left their employ the last day of December, 1856, having been full superintendent for about a year. In the spring of 1860 I was appointed superintendent of the Boston Arms Company. In the summer of 1861 I was employed by the manufacturers of the Spencer gun, and remained superintendent until the spring of 1862. Soon after this date, in the early summer, I was appointed superintendent of the Robinson Armory, of New York city, and manufactured for the Government Springfield muskets, and remained in said position until the last part of the year 1863 or the first part of 1864. I have had occasion to examine nearly all the guns described in French patents, English patents, and American patents, and I understand nearly all the different kinds of guns that have been manufactured in this country since the year 1850. I have frequently been called to act as expert in causes before the United States courts, in suits on fire-arm patents.

3 Q. Are you a graduate of any college? And state if your studies therein were directed specially to any particular branch.

A. I am a graduate of Trinity College, Hartford, Connecticut, of the class of 1848, and I did devote myself specially in college to sci-

entific study, and I spent much of my time in the machine
76 shops of Hartford for the purpose of informing myself as to the practical operation of the various kinds of mechanism made in that place. Before I graduated—that is, in the summer of 1848—I continued my studies at Ballardvale, Massachusetts, and was an apprentice to the machinist trade in the Ballardvale locomotive shop.

4 Q. Have you read, and do you understand, the contents of a certified copy of letters patent granted to John W. Cochran, dated May 7th, 1872, No. 126,466, for improvement in breech-loading fire-arms, and which is marked Exhibit Cochran Patent?

A. I have read said patent, and think I do understand the contents thereof.

4½ Q. Please look at the fire-arm marked Exhibit Whitney Rifle, and which has the number 2059 stamped on it, and state whether you understand the construction of said arm.

A. I do.

5 Q. Please examine the copy of letters patent issued to A. D. Perry, dated Nov. 28, 1854, No. 12001, and state whether you understand the same.

A. I have examined said patent, and think I do understand the same.

6 Q. Compare the devices and combination of devices described and shown in said letters patent to Perry with those described and shown in the said Cochran patent and specified in the first claim thereof, and state whether they are substantially alike or substantially different, and give your reasons for any opinion you may express.

A. I have made the comparison required by the question, and find that the said Perry patent does not describe or show the devices set forth in the first claim of the Cochran patent, nor the combination of such devices set forth in said claim. The Cochran patent describes and shows in a breech-loading gun a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point.

The Perry patent describes and shows a breech block having the
77 characteristics set forth in the first claim of the Cochran patent, and although somewhat different from the Cochran breech piece, is, in my opinion, for the purposes of this combination, the mechanical equivalent thereof. The Cochran patent describes as combined with said breech block a brace other than the nose of the hammer, pivoted to the frame in rear of said block, said brace being arranged to swing upward in unlocking the breech, substantially as described. The Perry patent, on the contrary, describes and shows no such brace, nor does the device shown in the Perry patent have any of the characteristics described as peculiar to the brace in the Cochran patent. The lever *q*, in the Perry Patent, which operates to hold the breech block in place, is pivoted to the breech block itself, and not to the frame of the fire-arm. It does not move upward in unlocking the breech, but, on the contrary, moves downward. The bracing end of said lever does not brace the breech block by contact with it at the end of said lever,

which moves to break the contact, but, on the contrary, said lever comes in contact with the frame when acting as a brace for the breech block. Said lever is pivoted to the breech block and swings with it, and partakes of all its movements, and has its own peculiar characteristics, which are entirely different from the characteristics and arrangement of the Cochran brace. Now, as I understand the combination set forth in the first claim of the Cochran patent, said combination is limited to a brace, which has substantially the characteristics shown and described in the Cochrane patent, and that the combination claimed is not for a breech block of the kind described, and any brace but substantially the brace set forth and shown in said patent. I also understand that the combination of the first claim of the Cochrane patent is limited to the combination of a breech block and a brace, such as is described, the brace being arranged as a pivot in the frame in the rear of said block, so
78 that it may swing upward in unlocking. The Perry construction is the reverse of this, the brace, as I have said before, moving downward in unlocking, not being pivoted to the frame, not out of the way of the breech block when the breech block is open, nor in the rear of the breech block when the block is moved open, but moving with said block and changing its position in reference to the frame with every movement of the block. For these reasons I am of the opinion that there is nothing shown in the Perry patent which is substantially the combination of mechanism set forth in the first claim of the Cochran patent, nor producing substantially the same results.

7 Q. State whether, owing to the fact that the brace in the Perry patent is pivoted to the breech closing piece, instead of being pivoted to the frame, and also that it moves downward and forward in unlocking the said breech piece, instead of upward and backward, as in the Cochran, the Perry combination is practically capable of being modified so that the brace can be operated by a lever projecting above the lock frame, or, in other words, of being operated by what is termed top action.

A. I have no doubt that an ingenious man could adapt a lever to be substituted in the place of the lever shown in the Perry patent, and so modify and change the frame and breech block that the lever could be moved by top action; but it would necessarily be an impracticable construction, and would make a very bungling and unserviceable arm, for such a lever must pass up through the frame, and to operate through a portion of the breech block, the frame having been cut open for a sufficient distance to permit the necessarily long movement of such a lever on the top, and as such a lever must have a long downward and upward movement, as well as a long forward and backward movement, the upper end of such a lever must project forward and above the frame to such an extent as to be so much in the way as not only to be un-
79 slightly, but a positive obstruction. If an exterior lever was applied, it must be applied to the pin or pivot upon which the lever *g* turns. The present mode of construction in the Perry patent in reference to the pivot must be changed, and a lever as

bungling, and presenting as serious an obstruction to the other parts of frame mechanism, as for instance the lock, as in the other supposed modification. In either case the gun would be impracticable, and not to be compared to such constructions now favorably known as top-action guns, and possessing none of their distinguishing merits. It would be absolutely valueless in the present state of the art.

8 Q. State whether the organization and construction described and shown in the Cochran patent is easily capable of such modification as is mentioned in the last preceding question, so as to make an arm which, considering the present advanced state of the art, should be a thoroughly practicable and valuable arm; and give an instance, if you can, of an arm possessing such modification, of which large quantities have been manufactured and sold, and which is one of the leading arms of the present day.

A. It is, and I know a number of arms so constructed, and of those prominent in the market I may mention the Remington arm, the Whitney arm, and the Dexter Smith. I understand that at least a million of the Remington breech-loading fire-arms of the class referred to in the previous question have been made and sold.

9 Q. State your reasons why the Cochran organization is capable of such modification.

A. First, because both the breech block and the brace are pivoted to the frame, so that their construction may be substantial and occupy the least possible room in the frame. By the Cochran construction much greater strength can be obtained by the same quantity of metal. The movements of the parts may be less in number and less in extent. As the lever is pivoted to the frame behind
80 the block, so as to swing upward and backward, it is easily thrown out of the path of the block in opening by a short movement, and a movement of the same kind as the cocking of the hammer and the opening of the breech; that is to say, a top movement. The Cochran organization permits the constructor to make the brace and the breech piece so that they can move independently of each other, without complex mechanism for connecting them, which renders the arm so constructed the most simple and durable now known in the art.

(Complainants' counsel put in evidence an arm marked Complainants' Exhibit Remington Arm, W. C. W., Ex'r.)

10 Q. Please examine the fire-arm put in evidence by complainants, and marked "Complainants' Exhibit Remington Arm," and state whether that is the same arm to which you referred in answer to Q. 8; and explain the means by which the Cochran arm is so modified as to form the Remington arm, so far as concerns the combination of the first claim of the Cochran patent.

A. It is the same arm. The means by which the Cochran arm is so modified as to form the Remington arm is, first, the attachment of the thumb piece to the upper portion of the breech block, and also a thumb piece to the upper portion of the brace, so shaped in front as to act as a hammer for exploding the cartridge, and re-

moving the lever shown in the Cochran patent for operating the brace from underneath.

11 Q. Have you examined a certified copy of the letters patent granted to A. E. Burnside, dated March 25th, 1856, No. 14491? And, if you have, state whether you understand the same.

A. I have examined a certified copy of said letters patent, and believe that I understand the same.

12 Q. Compare the combination recited in the first claim of the Cochran patent with the description and representation of
81 the fire-arm of said Burnside, and state whether you find the combination of the said first claim of the Cochran patent described or represented in the said Burnside patent, and give your reasons for any conclusion you may express.

A. I have made the comparison required by the question, and I do not find described and shown in said Burnside patent the mechanism or the combination of mechanism described in the first claim of the Cochran patent. The Burnside patent describes and represents a movable breech, arranged to swing around a pivot below the rear end of the barrel, which is chambered out on a line with the axis of the barrel when the breech is closed, and makes a part of the barrel. Behind this chambered portion of the breech is a supplemental breech, which is the breech proper, or the breech-piece. This supplemental breech-piece is attached to and swings with the chambered breech, which is pivoted as I have before said. This whole combined structure, which I have just described, together with other pieces, is moved by a lever backward and downward in opening the barrel, and upward and forward in closing the barrel. The supplemental breech-piece F of the patent has, during opening and closing, a forward and backward movement on the breech, in the bore of which a circular portion of the supplemental breech slides longitudinally in line with the axis of the barrel. The rear end of this supplemental breech is curved in the form of a circle struck from the center in the axial line of the barrel, the circle or curved portion being at right angles to the plane of movement of the breech. A corresponding curve is made in the frame, also struck from the same center as the rear of the supplemental breech-piece, which is in the axial line of the barrel when the breech is closed. These two curves, namely, that of the rear of the supplemental breech-piece and the frame, extend from axial line of the barrel upward to the upper surface of the
82 frame, and downward about half that distance, so that the lower portion of the curve is nearer to the end of the barrel than that point which is on the axial line of the barrel; therefore when the breech is closed the supplemental breech must move backward so that its rear surface may come in contact with the curve of the frame, and must move forward in order that the breech may be opened. This curved portion of the frame, therefore, forms a direct rear support in the line of fire against the explosion, and at the same time holds the breech and supplemental breech firmly in place so that the explosion may not open the breech. The explosion is chiefly resisted by the direct action of the supplemental breech.

That portion, however, of the explosion which acts against the breech proper is taken up by the resistance of the supplemental breech to the movement of the breech downward, and the resistance of the pin upon which the whole system swings. I do not regard this breech of Burnside as the equivalent of the breech-block of Cochran, although it possesses some of its prominent features and characteristics. The Burnside patent describes and shows no brace whatever to act as rear support for the breech-block. It does describe a bolt marked H in the drawings, fitted through the frame and bearing the frame over its entire surface, excepting a small portion of the circle of said bearing which is cut away on the line, where the circle described by the rear portion of the breech, as it swings on the pivot, would cut it. When the breech is closed this bolt H is moved in its bearing, and the circular portion of said bolt, as it revolves, enters a corresponding circular recess in the rear of the breech-piece, and holds the breech-piece so that it may not be accidentally thrown downward and open the barrel. This bolt is turned in the frame in both directions to fasten or free the breech-piece by means of an exterior lever operated by the hand. The bolt receives none of the strain of the discharge, and is simply a latch to hold the
83 breech and the lever in a carrying position. Similar latches are well known, and were well known for such a purpose in breech-loading guns at the date of the Burnside application and long prior thereto. I therefore am of the opinion that the Burnside patent contains in substance neither the elements, nor combination of the first claim of the Cochran patent.

13 Q. It has been stated by the experts of the defendants that the cut-away portion of the bolt H moves upward and backward in unlocking the breech-piece. State whether a movement in that direction is either essential or important.

A. It is not. The patent expressly says, "the bolt is then revolved by the thumb-piece, or handle, I, by which means its cylindrical portion is caused to enter a corresponding cavity, *g*, in the breech-piece or chamber, which is thus held securely in place;" consequently the bolt may be "revolved" in either direction, depending upon the convenience of the operator only. It can, therefore, be located in reference to the lever in any desired position. The lever I is in fact a crank capable of entire revolution in either direction

14 Q. Mr. Earle, one of the defendants' experts termed in his evidence in this case the bolt H a "cam;" he also termed the Cochrane brace a "cam." State whether either of the elements named has any of the characteristics or performs any of the functions of a cam, and whether they are properly so termed; and, if not, give to each its appropriate appellation.

A. Neither of said elements has the characteristics of a cam, nor performs any of the functions of a cam. They are not properly so termed, but instead thereof they should be called in the Burnside patent a bolt, and in the Cochrane patent a brace-lever. A cam is a piece of machinery which imparts motion and generally an irregular motion to another piece of mechanism.

15 Q. Please look at the model now shown you, marked
84 "Burnside Model," and state whether the same correctly represents the structure described in the Burnside patent.

A. In most of the parts which the model purports to represent, it represents by a rough construction such parts, excepting that the recess or slot in the frame, represented in Fig. 2, and which is the cause of the difference between the section Fig. 2 and the side elevation Fig. 1, as far as regards the curve of the rear support in the frame shown in full lines, and partially straight, in Fig. 2 is concerned, and entirely of curved lines in Fig. 1, and excepting also that by shrinkage or by bad construction in the model, when the breech is closed, the supplemental breech does not move backward in contact with the curved rear support. The explosion would very soon move it there, however, if constructed in the manner shown in the model.

16 Q. In the Burnside gun, as represented in the drawings and specification of the Burnside patent, state whether there is a solid stationary rear support, or, as you have termed it in a preceding answer, a "direct rear support" in the line of fire.

A. There is.

17 Q. Suppose that in the Burnside gun the bolt or latch H were entirely removed, could the breech-closing piece by any possibility be blown open by the shock of the discharge?

A. It could not.

18 Q. State whether, in the arm represented in the Cochran patent, the entire shock of the discharge is received and sustained by the pin upon which the supporting brace moves.

A. It is entirely, for the reason that before any shock can be transmitted to any other part, or to the frame, the pin must be displaced, because it is first in the line of strain, and the strain is in a direct line towards it, and the brace closely fits the pin, and the frame is so constructed, and the brace is so constructed, where the two come in juxtaposition, that if the pin were loose the blow
85 would be warded off, and no part of the shock supported or prevented by the frame. It is plainly and unmistakably a characteristic of the Cochran construction that the pin upon which the brace turns is intended to be, and is, the entire resisting piece which prevents the brace from yielding or backing away from its work.

19 Q. Mr. Earle, in his answer to Question 5 of his redirect examination, upon pages 27 and 28 of defendants' printed record, states as follows, viz: "The brace is brought to a bearing against the frame, and it would necessarily take some portion of the direct strain, &c." Do you agree with him in his conclusion?

A. I do not agree with him.

20 Q. Compare the Whitney arm and the Remington arm with that of Cochran, and state whether, in the said Whitney and Remington arm, the pivot upon which the supporting brace moves receives and sustains the entire shock of the recoil, as in the Cochran.

A. As in the Cochran, the Remington and Whitney brace pins receive the entire shock, which is thrown upon the brace.

21 Q. Is there not a wide and marked difference, known and recognized in the art, between fire-arms having a solid stationary rear support in the line of fire, for a movable breech piece, and those in which the breech-closing piece is supported and sustained against the shock of fire by a movable support not in the line of fire?

A. There is.

22 Q. Please examine Cross-q's 131, 132, 133, and 134, put to Mr. Whitney, to be found on page 85 of the defendants' printed record, and his answers thereto, and indicate whether you concur in the conclusions of Mr. Whitney, as expressed in his said answers; and, if not, give your answers therefor.

A. I do not concur with Mr. Whitney in his answers to said questions, and I have given my reasons substantially in my answers to questions in this examination, in which I have described
86 the operation of the breech and its part in resisting the force of explosion; but I may say that the explosion must force the supplemental breech piece close against the circular rear support, and since the supplemental breech piece cannot be forced downward by the tendency of the breech to drop downwards, the latter must be held firmly in the line of fire, and the greater the force of the explosion the more firmly will the breech be held in place.

23 Q. Please examine copy of the letters patent to Thomas Lee, dated April 27th, 1858, and No. 20073, and compare the combination recited in the first claim of the Cochran patent with the description and representation of the fire-arm of said Lee, and state whether you find the combination of the said first claim of the Cochran patent described or represented in the said Lee patent, and give your reasons for any conclusion you may express.

A. I have examined said Lee patent referred to in the question, and I do not find the parts or combination of parts described in the first claim of the Cochran patent, either described or shown. The Lee patent shows and describes a breech-closing piece, adapted to move in the arc of a circle around a pin fixed in the frame underneath the breech of the barrel, and, in my opinion, it is substantially an equivalent for the breech block described and shown in the Cochran patent, and in the first claim thereof. But the piece *f*, which is pivoted to the frame, and against which the breech block rests, does not move, and cannot move backward and upward in releasing the breech block, but, on the contrary, moves downward for such purpose. The shock of the discharge, which is thrown upon said piece *f*, is chiefly resisted by a lip or projection upon the top of said piece, which rests down upon the frame. This piece *f* is not an equivalent for the brace of the Cochrane patent, nor does it have the mode of operation of the brace described in said patent. The combination of the breech block and
87 this movable piece *f* is not such as is described for the breech block and brace in the Cochrane patent, nor that particularly specified in the first claim of said patent. This

gun of Lee's is of the class having a direct rear support, and said support is in the line of the fire substantially, although a portion of the strain of the fire is also thrown upon the pivot pin of the breech block, after the manner of the Cochran, Remington, and Whitney arms; but the pin in the Lee arm referred to upon which the breech block swings and the pin upon which the lever *f* swings are not relied upon to sustain the shock of the explosion, but, on the contrary, a definite and positive provision is made to avoid such strain upon these pins, and so one of the chief excellencies of the Cochran system, and one of its most important characteristics is entirely wanting in the Lee patent, and in place thereof a construction very objectionable and detrimental is the result, rendering the arm practically useless, in my opinion, on account of the enormous friction which an attempt to move the parts after firing must produce, and rendering the manipulation of the arm so awkward and impracticable as to throw it outside of the classes of the arms which have been successfully brought before the public, and which have been adopted extensively, either as a military or sporting arm.

24. Q. In the Lee arm is any portion of the strain of the shock in firing sustained by the pin upon which the lever *f* turns?

A. None whatever; the pin could be removed at the time of firing without allowing the breech piece to come back.

25 Q. Considering the present state of the art, would it be possible to apply a top action in the Lee organization so as to make a practically useful arm?

A. No.

Adjourned to February 25th, 1876, at 10 a. m.

88 NEW YORK, *February* 25, 1876—10 a. m.

Parties met pursuant to adjournment.

Present: Counsel as before.

26 Q. Is top action a desirable feature in fire-arms; if so, why?

A. It is a very desirable feature, for the following reasons: It affords a much more convenient means for operating the parts, and in the system of fire-arms embodying the principles of the Cochran patent a much shorter motion may be given to the parts, and they may all be of substantially one kind of motion; that is to say, they may all correspond with the old and well-known motion usually given to the hammer in guns which were used, and which are now used for military or sporting purposes in muzzle-loading guns; it permits the arm to be constructed with a fixed trigger guard underneath the lock-frame, and the lower part of the lock-frame to be closed substantially from dust and dirt; it enables the arm to be operated in positions where an under movement could not be attained without raising the arm itself from its position, as, for instance, the position of firing, where an under lever would come in contact with the ground, or other obstruction, when the operator was lying down; it makes a safer arm, an under lever being liable, in a greater degree, to be caught and moved by engaging with the accoutrements of a soldier, or brush or branches in case of its use by a sportsman;

it enables the operator to apply his force in moving the parts backward where the greatest force is necessary, to better advantage and more directly; it furnishes also a more symmetrical and a stronger arm, and enables the arm to be made with a less number of parts, and those parts more simple in construction.

27 Q. Is the organization, which is so arranged that the supporting brace shall move upward and backward instead of downward
89 and forward, in the act of unlocking the breech-closing piece, simply arbitrary and immaterial, or is it important and useful, and why?

A. It is not simply arbitrary and immaterial; it is important and useful. First, it enables the arm of the Remington or Cochrane class to be constructed with top action, the advantages of which I have attempted to explain in the last preceding answer. Second, the brace may have a shorter range of motion and entirely within the breech frame. It affords a ready and convenient means of combining it with the hammer motion, thus dispensing with one movement of the hand; it enables the brace to be made stronger without interfering with the motions of the breech piece. As its motion may be shorter, it occupies less room in the frame, and therefore the whole structure can be the more compact. In consequence of its moving in the same direction backward as the breech piece the breech piece may be made much stronger or thicker and have the same range of motion without interfering with the brace, and both of these parts are thus capable of being combined with each other without leaving any great amount of opening at any time which can be seen, or which may be filled with dirt or other obstructions from the upper surface of the arm.

28 Q. State what are the advantages, if any, in having the supporting brace other than the nose of the hammer.

A. The first advantage, and the one from which the others principally flow, is that it permits the two functions which would be performed by the nose of the hammer, namely, that of firing the arm, or, rather, of striking the primer, and the function of bracing the breech piece to be separated so that those functions may be performed in a better manner by means adapted to the necessities in each case. In order that the nose of the hammer may strike the cartridge primer to the best effect the blow of the hammer must be, when struck, sub-
90 stantially in the line of the direction of the axis of the barrel. This cannot be if the nose of the hammer is used for a brace for a breech piece swinging in the arc of a circle around a pivot under the face of the breech of the barrel, for in order to have the nose of the hammer act as a brace to such a breech piece its pivot or center of motion must be below and in rear of the breech of the barrel, and also so much in the rear of the pivot upon which the breech piece swings that a line drawn from the bracing surface of the nose of the hammer to its center of motion shall make a very decided angle with the line of the axis of the barrel. The best position for the center of motion of the brace to sustain the rearward shock of the discharge against the breech piece would be in the line of the axis of the barrel extended rearward. If in such a case the nose of

the hammer should be relied upon to strike the cartridge, the construction would be utterly impracticable, for the blow would be substantially at right angles to the axis of the barrel. Again, if we locate the pivot of the hammer on the same center as the pivot of the breech piece, in order that its nose may strike the cartridge in a line parallel with the axis of the barrel, the nose of the hammer could not act as a brace to sustain the rearward shock of the explosion against the breech piece. Therefore the requirement for performing the two functions above referred to are different and antagonistic, and mechanism which enables them to be separated possesses a very great advantage over that in which they are united in the nose of the hammer alone. The separation of the brace from that part of the hammer which strikes the cartridge primer permits the arm to be constructed with a firing pin in the breech lock located on a line with the axis of the barrel, which is a very important, and, in the present state of the art, necessary, feature for the success of a breech-loading fire-arm. This is permitted by constructing a brace for the breech block independent of the nose of the
91 hammer, which nose of the hammer, when used as a brace to the breech block in the Flobert fire-arm, which is the only one known to me as having been made previous to the Cochran invention, struck directly upon the primer of the cartridge. Without this separation it would not be practicable, in the class of arms of which the Cochran is the prototype, to use said firing pin, for the nose of the hammer could not be placed in the line of strain, thrown by the explosion in the direction of the pivot of the hammer, without throwing the nose of the hammer so near to the face of the breech piece and breech of the barrel as to leave no room to introduce such a firing pin. Another advantage in separating the brace from the nose of the hammer is, that the brace may be thrown nearer to its center of motion, where it can be made stronger and more efficient with a much less quantity of metal than it could otherwise be, and at the same time be concealed in the frame, and rest more compactly and firmly in it; another advantage of this separation is that it enables the breech-closing piece to be constructed substantially solid without cutting away part of said breech piece, and the part most useful and important, which must be cut away for nearly the whole width of the breech piece in order to allow the nose of the hammer having sufficient body to resist the explosion to enter when acting as a brace for the breech block. In the Flobert arm to which I have referred, and in which the nose of the hammer both acted as a brace, and also struck the primer of the cartridge to explode it, the said nose was made too light to sustain the force of the explosion of such cartridges as are used at the present day in breech-loading guns, and I very much doubt whether it could be constructed by any modification to sustain the heavy blow which modern breech pieces are obliged to sustain, and be a practical arm. It was of a class of arms called saloon pistols, which were chiefly used for target practice, for pleasure, and used what was called the Flobert cartridge, which contained percussion powder, with
92 much less, if any, of the black powder used to give force in modern cartridges.

Adjourned to March 7th, 1876, at 11 o'clock.

NEW YORK, *March* 23, 1876—11 a. m.

Met pursuant to adjournment.

Present: Counsel as before.

The witness, Mr. HICK's, being cross-examined by counsel for defendants, testifies as follows:

29 X Q. Did you ever see a gun constructed according to the drawing belonging to the Cochran patent of May 7, 1872?

A. No; I never did exactly like it.

30 X Q. Would a gun, in your opinion, constructed according to said drawing, be a salable arm?

A. I think not, at this date.

31 X Q. Give the reasons why not.

A. I refer to an arm made exactly like the drawings of the patent; the principal objection as compared with arms now in use would be the connection between the lever which operates the brace of the breech block, which, although it affords a suitable means for opening the breech block, is not arranged to close it, unless the breech block be held to shut downwards so that its own gravity will tend to close it; in the drawings, figures 2 and 3, there is no connection made between the brace lever and the breech lock, and no thumb piece shown for moving the breech block back; there would be no difficulty in moving the brace away; it would be inconvenient to move the breech block back; it could be pushed forward and the locking brace thrown under the back of it; there is no hammer shown nor lock mechanism of any kind; this of itself would render the arm unsalable; however, the modifications which it would be necessary to make, to render the arm salable, could be easily made, but
93 in the exact form shown in the drawing it would be hardly salable in my opinion.

32 X Q. In the Cochran gun, as shown and described in said Cochran patent, does the mechanism for closing and locking the breech operate automatically?

A. In contradistinction to its being operated by means of the hand, I answer no.

33 X Q. It is true, is it not, that before the invention described in said Cochran patent a breech block, swinging backward and downward and pivoted to the frame substantially like that shown in said Cochran patent, was known to the art?

A. Yes, substantially; the patent says so.

34 X Q. Do you not understand that all the combination shown in the Cochran patent for closing the breech and locking the same consists of a breech block of a well-known type, swinging backward and downward in combination with a locking lever or brace operated by the hand?

A. No; I do not.

35 X Q. Please state what other element enters into the combination of mechanism for closing the breech and holding it closed be-

yond the breech piece swinging backward and downward on a pivot and a brace or lever pivoted to the frame.

A. In addition to the supposition of the question the two elements must have a certain combination and arrangement in reference to each other in the frame of the gun, which arrangement and combination is stated in the first claim of the patent, and, although the parts are at rest at the time supposed in the question, they must be so combined and arranged that when they are moved they can act in the manner described in the claim, each element having its own characteristics and peculiarities.

36 X Q. If there is any other element or device which enters into and forms a part of the combination than those mentioned in the preceding sixth interrogatory please state it.

94 A. If, in the question, the elements referred to are referred to as having all the characteristics and elements attributed to them in the Cochran patent, then there are no other elements necessary to the combination of the first claim.

37 X Q. In order to operate the gun described in the Cochran patent is it not necessary, after the insertion of the cartridge into the chamber, to first close the breech by hand and then bring the brace into proper relation with the breech to hold the latter closed by another movement of the hand?

A. I do not so understand it to be limited in the patent that the hand of the operator must necessarily close the breech and move the lever so long as the breech and lever are operated substantially as described.

38 X Q. In a gun constructed according to the drawings in the Cochran patent, is it possible to close the breech by means of the lever, one end of which constitutes the brace?

A. I don't see how it could be done, as it is there arranged, except in the position to which I have previously referred.

39 X Q. In the practical working of an arm constructed according to said drawings hand manipulation will be necessary to aid in closing the breech, will it not?

A. It would be necessary to aid the hand which was operating the lever connected as is shown in Figure 1 in closing the breech piece; in Figures 2 and 3 the breech piece is closed by means of the hand.

40 X Q. Please look at the fire-arm described in the Perry patent of Nov. 28, 1854, already put in evidence, and state whether you do not find described and shown therein a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point.

A. I do.

41 X Q. Do you not also find in the same patent a brace,

95 other than the nose of the hammer, the office of which is to hold the breech block firmly in place when closed?

A. Yes; I find a brace other than the nose of the hammer, the office of which is to hold the breech block closed, how firmly would depend upon circumstances; if properly constructed it would, no doubt, hold the breech block.

42 X Q. Does not the said Perry patent show and describe an

arm whose breech block can be opened, and closed, and locked by simply working the guard or hand lever?

A. I think so.

43 X Q. Please look at the gun described and shown in the letters patent granted to A. E. Burnside, dated March 25, 1856, already in evidence, and state whether you do not find shown therein a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point.

A. In general terms, I do. I would rather call this piece a movable breech, for it is the breech of the gun, perfected for the charge, and is open near the barrel at the very point where it should be closed to make a breech block. It swings backward and downward in the arc of a circle around a fixed point.

44 X Q. The block in question differs from the block shown in the Perry patent and in the Cochran patent, does it not, in the circumstance that it contains a chamber for the cartridge?

A. Yes; in that respect, and others, too.

45 X Q. By the other differences to which you refer, do you mean these peculiarities of structure which are rendered necessary or advisable by reason of the fact that the block contains also a chamber for the cartridge, and that some provision should exist for starting the cartridge shell out of the chamber?

A. More than that, I refer particularly to the fact that the breech is constructed with an opening through it in the line of the axis of the barrel, and is provided with a breech plug, which, when
96 it receives the force of the discharge on its face, is caused to fit its rear position against the frame, which acts as a rear support.

46 X Q. In other words, you mean to say, do you not, as a summary of your previous answers on this subject, that that piece, which I call block, and which you agree swings backward and downward in the arc of a circle around a fixed point, contains a chamber for a cartridge, and also has a movable, sliding chamber plug, which receives the recoil of the charge, and is capable of moving forward, when the block is swung downward, to start the cartridge shell in the chamber?

A. It is capable of moving forward when the breech is swung around its center in falling, in addition to the peculiarities to which I have referred.

47 X Q. Are there any other differences between the breech block shown in the Cochran patent and that shown in the Burnside patent than those which are mentioned or necessarily comprehended in the next preceding question?

A. They are very different in appearance and in mode of operation, the only direct similarity being that they both move backward and downward in the arc of a circle around a fixed point. I think all the other peculiarities have been mentioned, especially those which are substantial.

48 X Q. In the Burnside gun is all the cartridge chamber in the swinging block, and is not a portion of the chamber in the rear of the barrel?

A. It is not all in the block, and a small portion of it is in the barrel.

49 X Q. In the gun described in the Cochran patent is not a part of the cartridge chamber located in the breech block?

A. Yes, a small portion of it; that which causes the flange.

50 X Q. Now, in the Burnside patent do you not also find a piece of metal which turns on its own axis, and which aids to keep the breech block in place, and which is something other than
97 the nose of the hammer, and which also must be swung upward when the block is to be turned downward?

A. I find a piece of metal (a bolt) which turns on its own surface in a hole in the frame, which must be rotated, in one direction or the other, to allow the breech piece to be opened. It is arranged in the patent to turn upward, but, whichever way it was turned, when the recess portion comes opposite the portion of the breech piece which is acted upon by it the breech piece may be turned.

51 X Q. Is not the turning of the surface of the said bolt that which permits the breech block to be swung downward?

A. Yes; the breech block may then be turned down, and if the bolt is in the locking position the breech block cannot be turned down.

52 X Q. You call the piece of metal a "bolt," probably because that term is used in the patent; would it not be perfectly correct to call the said piece a locking device?

A. I do call it a bolt because it is called so in the patent; it would not be correct to call it a locking device, as the term is used in the Cochran patent. Abstractly it is a locking device; more properly, I should say, a fastening device.

53 X Q. Is it not true, in your judgment, that the piece which I call a locking device and which you designate as a bolt, or fastening device, sustains, in part, the recoil from the discharge?

A. I doubt whether it sustains any of it if the other parts of the gun are properly constructed.

54 X Q. Whether it would or would not sustain a part of the recoil depends, then, merely upon the manner in which the arm is constructed, does it?

A. I think if the arm is constructed as shown in the patent it would not sustain any of the recoil.

55 X Q. Is not the longitudinal axis of the chamber plug above the center from which the curve of the rear and of the swinging block is described?

A. No; I think not. I quote from the patent as follows:
98 "The rear of the movable cone seat or breech pin is curved from a center within the axis of the barrel; therefore the axis of the barrel is on a line with the radius of said curve." There are radii of the curve which intersect said axis, but I think it cannot be correctly said that the axis of the barrel is above the radius of the curve.

56 X Q. Does the drawing of the Burnside patent show that the rear end of the breech block is on a curve of a circle, the center of which is in the axial line of the barrel?

A. Not strictly. It is undoubtedly in the axial line of the barrel extended. The curve, being longer upon the upper side of the axis than upon the lower side, has a tendency to deceive the eye somewhat and make the radius appear a little lower than it otherwise would, but I think substantially the drawing corresponds with the description, and that the circle is struck from a point in the axis of the barrel.

57 X Q. Please refer to this language, found in the Burnside patent: "But as we may want to place the projecting portion of the curved surface lower down, as at T, for instance, and also for additional security, I have adopted the following device for the purpose of more unfailingly accomplishing this end." Then follows a description of the locking bolt. Do you not understand, from this part of the specification and the parts which follow in immediate connection, particularly that part which speaks of the location of the handle I of the bolt so that, in the operation of the arm, the bolt must be turned before the piece can be fired, to indicate that the patentee meant to make provision against the tendency of the recoil to throw down the breech block?

Adjourned to Friday, March 24th, at 10 o'clock a. m.

99 MARCH 24, 1876—10 o'clock a. m.

Met pursuant to adjournment.

Present: Counsel as before.

Witness answers:

A. I have referred to the language quoted from the patent mentioned in the question, and I understand that the location of the handle I of the bolt is so placed that it must be turned before the piece can be fired, but not that as the arm is constructed in the patent, that the patentee meant to make the turning of this bolt a provision against the tendency of the recoil to throw down the breech block. He speaks of a possibility that he "may want to place the projecting portion of the curved surface lower down, as at T, for instance, and also for additional security, I have adopted the following device:" * * * Now, there is no doubt that it is important that the breech block should be in position, so that the bolt may be turned to fasten the breech block before firing, and, therefore, to insure that position, the best way to secure it is to have the bolt turned. Whatever the necessity may be, under the imagined want to make a change, the bolt, as it is shown in the patent and drawings, cannot receive any portion of the recoil under ordinary circumstances.

58 X Q. Please look at the drawing, Figure 2 of the Burnside patent, and noticing particularly the curved portion of the frame, against which the rear end of the breech block comes into contact when the piece is ready for firing, compare that part with the model in the corresponding part, and state whether there is not an error in the construction of the model, and state what that error is.

A. I have made the examination required by the question, and there is a slight error in the construction of the model, in that the metal of the frame in the rear of the breech block on the centre line

of the frame passing vertically through the axis of the barrel
100 extended is in the model curved below the axis of the barrel, the same as the portion below the axis of the barrel on each side of said vertical centre line from the axis of the barrel, the breech or end of the frame should be carried down on a line tangent to the curve of the seat for the cone-seat to fit in, what the width is is not shown on the drawings; it may be intended to be about the width marked in pencil on the model, and where the letter Y is marked on the model, but it does not extend all the way across the breech seat.

59 X Q. When the Burnside gun is in position for firing, do you understand that the sliding piece at the rear of the block abuts hard against the curved part of the frame until after the recoil takes place from the effect of firing the cartridge?

A. Yes.

60 X Q. As a person practically acquainted with the manufacture of fire-arms, do you wish it to be understood that you consider that the Burnside gun would be a safe one to use without the provision of the locking device or bolt shown in the patent?

A. I have expressed no opinion as to the safety of the Burnside gun; in making his gun, I would not leave out any of the parts, and a bolt to lock the breech piece in its place is important, for it insures the user that the breech block is in the firing position, and cannot be accidentally moved from that position during the manipulation of the parts in firing the cartridge; if all these latter matters were in some other way provided for I would as lief fire the gun then as I would with the bolt; I do not regard the gun myself as a very practical and desirable arm, nor one that is as safe as those now in use.

61 X Q. With reference to your opinion as to the practicability and value of the Burnside arm, described and shown in said Burnside patent, cannot you conscientiously say that it is an infinitely better arm in every particular than the crude, inoperative, and rudimentary structure shown in the drawings of the Cochran patent?

101 A. The two guns, in my opinion, cannot be easily compared with each other, for they are of an entirely different class; the Cochran arm, as far as it goes, as shown in the drawings of his patent, is an organization for the use of a modern metallic cartridge, which closes the breech of the barrel and seals it hermetically, and introduces into the art a new and important construction or combination, which is not found in the Burnside patent; for the class of fire-arms shown in the Burnside patent may or may not be one of the best of its class, and if I should say that conscientiously I considered it the best of that class of fire-arms, or of fire-arms made at the date when Burnside's invention was made, it would not change what I have said in reference to it, or detract from the merits of the combination shown in the Cochran patent.

62 X Q. Do you mean to have it implied from your answer that there is shown in the Cochran patent any practically operative fire-arm?

A. A complete fire-arm is not shown in the Cochran patent; such parts as are shown are practically operative.

63 X Q. In your direct examination you have testified concerning the letters patent granted to T. Lee, April 27, 1858, heretofore put in evidence; now, in view of the said Lee patent, the Burnside patent, the Perry patent, and any other inventions which are known to you as pre-existing in the art, do you not find that before the Cochran invention there was known the combination in a breech-loading gun of a breech block, pivoted so as to swing backward and downward in the arc of a circle around a fixed point, with a brace other than the nose of the hammer pivoted to the frame in rear of said block?

A. There were, undoubtedly, combinations in breech-loading guns of the parts as mentioned in the question; but as the question quotes the first part of the first claim of the Cochran patent, and therefore the first two words, "The combination," in this sense, in order that

I may not be misunderstood, I say that I do not find in the
102 state of the art any pre-existing combination having the peculiarities designated by the first words of said first claim quoted, but I do find in the state of the art certain combinations in breech-loading guns of breech blocks, pivoted so as to swing backward and downward in the arc of a circle around a fixed point, and one combination with a brace, other than the nose of the hammer, pivoted to the frame in rear of said block; I mean the Lee patent.

64 X Q. Suppose referring to the defendant's Whitney rifle, and assuming that the springing locking shoulder which is therein shown independent of the breech piece and hammer were arranged so as to swing downward in unlocking the breech instead of swinging upward, in your opinion would the arm so changed in that particular embody any of the invention recited in any of the claims of the said Cochran patent?

A. I am not prepared to express an opinion of the second and third claims of the said Cochran patent at this moment; but I am of the opinion that the said modified Whitney arm would not contain the invention described in the first claim of the Cochran patent. Whether it would contain any part of the Cochran invention, I have not examined closely enough to determine. I understand that the second and third claims of this patent are not in litigation.

WM. C. HICKS.

Subscribed and sworn to before me, this 24th March, 1876.

W. C. WITTER, *Examiner.*

IDA COCHRANE, a witness of lawful age, produced on the part of the complainants, having been by me first duly cautioned and sworn to testify the truth, the whole truth, and nothing but the truth, in the matter of controversy herein, and being examined by Mr. BETTS, deposes and says as follows:

1 Q. What is your name and residence?

103 My name is Ida Cochrane; I reside at New Hamburgh, N. Y.

2 Q. Are you the daughter of Mr. John W. Cochrane, to whom

letters patent were granted on May 7th, 1872, for improvement in breech-loading fire-arms, being the letters patent upon which this suit is brought?

A. I am.

3 Q. Is Mr. Cochrane now deceased; if so, when did he die?

A. He is; he died on the 2d of January, 1873.

4 Q. Were you the executrix of his will?

A. I was.

5 Q. Do you know what the pecuniary circumstances of your father were during the years from 1859 to 1867?

A. Yes, to a great extent. In 1860 particularly, 1861, and up to 1863 and 1864, his circumstances were very straitened indeed. He was in 1860 living in Brooklyn—had a room, living very plainly indeed. In 1863 and 1864 it was the same thing. He was then living in East 13th and in Second streets, in the city of New York. A great deal of the time he was quite sick and incapacitated from doing business regularly. In 1865 he had some business arrangement by which he received some small sums of money, but more particularly for specific purposes, and very little for other purposes. In the latter part of the year, or first part of 1866, he was in Europe, but not successful; in 1866 he was more so; he then received some money.

6 Q. Do you know whether or not, when he did receive any money for inventions or patents of his, he was obliged to expend it in any particular way; if so, how?

A. I do. Whenever he did receive money, he had to apply it to previous indebtedness, and he had exceedingly little for his family expenses or which he could apply to carrying out his inventions other than the specific contract on hand.

104 7 Q. Do you remember his having a contract with a Mr. John Haldeman in reference to a fire-arm patented by him in 1865?

A. There was a contract between him and Mr. Haldeman at that time, as I learned from his diary, by which he was to receive royalty on guns.

8 Q. Do you know how he had to apply any sums of money he received from Mr. Haldeman?

A. Yes; for the purposes of the contract, leaving him but little to expend in other ways.

9 Q. Do you know whether or not he was in Europe during the years 1866 or 1867; and, if so, on what business?

A. He was in Europe in 1867; I think it was on this Haldeman business; it was always guns and cartridges.

10 Q. During the years from 1859 to 1868 did he contribute to the support of his family when he was able to? Can you give any idea to what extent?

A. Up to 1865 or 1866 he did contribute towards the support of his family, but hardly comfortably, but as far as he was able. After the latter part of 1865 or first of 1866, and up to his death, he only contributed to my support.

11 Q. Did you carry on any correspondence with your father between the years 1859 and 1868, when he was away?

A. Yes.

12 Q. Have you the letters, or any of them, that he wrote to you during that period?

A. Yes; I have a number of them.

13 Q. Will you please give such extracts from them as relate to his pecuniary condition during those years?

A. I will. They are as follows: In letter of Saturday, — 26, 1862, he says: "We have been expecting to close every day, and I don't know that I am any nearer to the accomplishing of my hopes than when I left N. Y." In letter of 1863, New Year's Day, he says: "I should be much more happy could I respond liberally to all of you. I could not comply to the small request of dear Helen the other day. I
105 beg you to accept of the small enclosure of $10. It is all I have after the (his) board bill this week. I feel so down when affairs go down hill, as they are going, etc." In letter of July 23d he says: "You speak of your weekly allowance. * * * The fact is I do all I can possibly for a poor old cripple, as I am." In letter of July 1, 1864, he says: "I have no good news from W. I yet trust the gauger will go through;" and on the 25th he writes that he is generally discouraged. In his letter of Monday, Oct. 3, he appears very depressed about matters in general, and says: "Everything looks dark," &c. In letter of Feb. 7, 1865, he says: "I have my patents, but very little money, but that will be changed ere long, I heartily believe." In letter of June 5 he says: "I do not feel in buoyant spirits about anything; I have worked hard, and got a good arm, and contract for the manufacture of 10,000, but hardly got to work when comes down an injunction from the court to stop, as I infringe, etc. * * I know not what may be the result; it may upset me altogether; I shall not try again." In letter of July 1 he says: "Time hangs heavy; neither work nor lawsuits to wake me up." In letter of Aug. 18 he says: "I shall try to be represented at the Congress; I want very much to be there, but it is, I suppose, impossible for want of funds;" we seem to be all going wrong here in New York. In letter of Nov. 3 he says: "Had closed a contract for 10,000 guns, to receive a royalty of $2.50 per gun, to be made at Whitneyville Works, New Haven, Conn." In letter of Nov. 25 he says: "I would send more, but my pile is small." In letter, in 1866 (no date), he says: "You ask for funds; I am very short myself, but will do what I can, and as soon as I can." In letter of June 26 he says: "And notwithstanding the fine contract for 10,000 of my arms, commenced in New Haven, all has fell through, the Co. bursting up, after a delivery of a few hundreds, and the ex-
106 penditure of some thirty-five thousand dollars in tools. None of that loss comes on me or friend that contracted."

(These extracts objected to, as incompetent and hearsay.)

14 Q. Do you know anything in regard to his having made an application for a patent in January, 1859, for the invention claimed in the patent of May 7, 1872, on which this suit is brought?

A. He mentioned it in his diary—the application being made; I don't remember hearing him speak of it himself, not in 1859.

15 Q. Do you know anything in regard to his having made any actual gun or fire-arms, in accordance with his application of January, 1859?

A. He had in his possession a long time some old guns, and I remember his speaking of one of them as being the father of breech-loaders.

16 Q. Did you understand these guns to be guns made for him to illustrate his inventions?

A. Yes.

17 Q. Did you yourself understand the construction of guns, so as to say what the construction was of the old gun he called the father of breech-loaders?

A. No; I don't think I did.

18 Q. As executrix of your father, do you know whether or not he was still indebted or embarrassed at the time of his death?

A. Yes; I paid all his claims; there were judgments against him amounting to a good many thousand dollars.

19 Q. Did he leave any property except what was derived from the patent of May 7, 1872?

A. About two thousand dollars; that's all.

20 Q. And when did he receive the amounts he did receive from the patent of May 7, 1872?

A. Only a few days before his death, on Tuesday; he died on Thursday.

21 Q. Please state whether during the years from 1859 to
107 1868 you lived with your father, and also whether you father lived with any member of his family during that period.

A. No; he did not, but he called upon us every evening when we were in the same place, and when he was sick my sisters or myself or some member of the family took care of him. For many years before his death my mother did not see him.

Cross-examination waived.

IDA COCHRANE.

Subscribed and sworn to before me, this 23d February, 1876.

W. C. WITTER, *Examiner.*

JOHN D. VERMEULE, a witness of lawful age produced on the part of the complainants, having been by me first duly cautioned and sworn to testify the truth, the whole truth, and nothing but the truth, in the matter of controversy herein, and being examined by Mr. BETTS, deposes and says as follows:

1 Q. What is your name, age, residence, and occupation?

A. John D. Vermeule; fifty years of age; I am a manufacturer of india-rubber goods and treasurer of the United States Rifle and Cartridge Company; residence, Staten Island, N. Y.

2 Q. Do you know Mr. Eli Whitney, the president of the Whitney Arms Company, of New Haven, Connecticut, one of the defendants in this cause?

A. I do.

3 Q. Please state whether you have read the testimony of the said Eli Whitney, given in this cause, relating to a negotiation for a license under the Cochran patent, May 7, 1872, as stated by him in answer to Cross-questions 16 to 32.

A. Yes, sir; I have read it.

108 4 Q. Was you ever present at any interview between Mr. Whitney, Mr. Cochran, and Mr. Hovey, as stated by Mr. Eli Whitney?

A. I can't recall that I ever was.

5 Q. Is there anybody connected with the United States Rifle & Cartridge Company by the name of "Mr. Vermeule"?

A. No, sir; I presume I am the person intended by that name as printed.

6 Q. Please state whether you did have any interview with said Eli Whitney with reference to said patent of May 7, 1872; and, if so, state when, and what occurred.

A. As to when, it was in the fall of 1872. Mr. Whitney called at my office and asked the terms as to which we would give him an exclusive license for making guns under the Cochran patent. I declined to give him any terms, on the ground that we were then negotiating with the Messrs. Remington. He then asked if we would give a simple license, say for 5,000 guns, at 60c. each. I told him I would do nothing definite in the matter then, or until we heard from the Messrs. Remington. At his solicitation I promised to send him a note in the event of the negotiations with the Remingtons failing. He called on me once or twice after that to learn if anything new had turned up that had placed us in a position to treat with him. I told him no. We afterward closed the contract with the Remingtons. I think he called again, and I told him so. That was all that ever occurred between us.

JOHN D. VERMEULE.

Subscribed and sworn to before me, this 23d of February, 1876.

W. C. WITTER, *Examiner.*

109 NEW YORK, *March* 9, 1876—1.15 p. m.

Present: Counsel on both sides.

SAMUEL D. HOVEY, a witness of lawful age, produced on the part of the complainants, being by me duly sworn to testify the truth, the whole truth, and nothing but the truth, in the matter of controversy herein, and being examined by Mr. Mr. BETTS, says:

1 Q. What is your name, age, residence, and occupation?

A. Samuel D. Hovey; age, 35 years; I reside in the city; I am president of the Goodyear Rubber-Head Pencil Co., and treasurer of the American Egg Co.

2 Q. Were you ever president of the United States Rifle and Cartridge Co., one of the complainants; if so, during what period?

A. I was from its organization in May, 1872, till January, 1874.

3 Q. Have you read over the testimony of the defendant, Eli Whitney, from Cross-question 15 to Cross-question 32?

A. I have.

4 Q. Please state fully how much of truth there is in the statement there made by Mr. Whitney, and what the real facts are.

A. The statement of Mr. Whitney is incorrect; Mr. Whitney called several times at my office in 1872, and had interviews with myself and Mr. Cochran; at some of these interviews Mr. Vermeule was present; Mr. Whitney was constantly urging us to grant a license to him under the Cochran patent, and offered to pay us sixty cents royalty under said patent for each gun made by him, paying $5,000 down as an advance; we refused to accept his offers in every instance, solely on the ground that we were negotiating with E. Remington & Sons for an exclusive license; neither myself nor said United States Rifle Co. ever offered to license Mr. Whitney, or
110 the Whitney Arms Co., on any terms; I never stated to Mr. Whitney that I had cunningly inserted, or caused to be inserted, the word "withdrawn" in any bill pending before Congress, and I never had anything to do with inserting any such word, and I never had any interest in the Cochran patent until more than six months after the passage of the bill referred to by Mr. Whitney; the patent act passed July 8, 1870.

SAMUEL D. HOVEY.

Subscribed and sworn to before me, this 9th day of March, 1876.

W. C. WITTER, *Examiner.*

JEFFERSON M. CLOUGH, a witness of lawful age, produced on the part of the complainant, and being by me first duly cautioned and sworn to testify the truth, the whole truth, and nothing but the truth in the matter of controversy herein, and being examined by Mr. BETTS, says:

1 Q. What is your name, age, residence, and occupation?

A. My name is Jefferson M. Clough; age, forty-six years; residence, Ilion, N. Y.; my occupation is that of machinist; I have been employed in the Arms Works of E. Remington & Sons, at Ilion, N. Y., for fourteen years; I am still there employed; my present position is superintendent of said Arms Works; I have been employed as such superintendent for the last nine years.

2 Q. For how many years has your business made you familiar with the construction and operation of fire-arms?

A. For about fourteen years.

3 Q. Since you have been with E. Remington & Sons, has your position been such that you have been acquainted with the different styles of fire-arms manufactured by them, and with the times when they have commenced to manufacture their different styles of fire-arms?

111 A. It has been, and I have been familiar with their different styles of fire-arms, and acquainted with the times of their commencing to manufacture the same.

4 Q. Do you remember the Remington gun, which was manufact-

ured about 1864–1865, under the Rider patent, by the Savage Arms Company, at Middletown, Conn., for E. Remington and Sons?

A. I do.

5 Q. Did such guns have any locking brace pivoted in rear of the breech block?

A. They did not.

6 Q. What was the character of those guns in regard to their practicability and success?

A. In consequence of the locking brace being pivoted in front instead of rear of the breech-closing piece the amount of the leverage was so great as necessarily to weaken the brace, so as not to furnish a sufficient support against the recoil of the charge. Several of them failed in this respect, and, as a consequence, that form of gun was abandoned.

7 Q. Were any more of that style of gun ever manufactured by E. Remington & Sons, or any one else, to your knowledge?

A. There were none by E. Remington & Sons, and none by any one else, to my knowledge.

8 Q. When first did E. Remington & Sons ever make a gun having a breech block pivoted in the frame so as to swing backward and downward in the arc of a circle round a fixed point in combination with a brace other than the nose of the hammer, pivoted to the frame in the rear of said block, said brace being arranged to swing upward in unlocking the breech?

A. There was a gun of that character produced in April, 1866.

9 Q. How many were made at that time?

A. There was only one.

10 Q. State whether that gun was made for experiment or for sale.

A. It was made for experiment.

112 11 Q. How did that gun differ, if at all, from the present Remington fire-arm?

A. It did not differ.

12 Q. Was that gun ever sold?

A. No, sir.

13 Q. When was the next gun containing those features made by E. Remington & Sons?

A. The next one was made after this; just when I cannot say, but it was sold in July, 1867, to Brigham Young, Jr.

14 Q. Was that the first gun having the features above described which was ever sold?

A. It was.

15 Q. Where was the next gun or guns containing these features made and sold?

A. There were some turned out in August, 1867. There were 150 to apply on an order of two hundred by the French Government.

16 Q. State whether or not that lot was an experimental lot.

A. Yes; they were for trial.

17 Q. And where were they sent to?

A. To France.

18 Q. What was the next lot of these guns?

A. The next lot were made to apply on a contract which the company had with the Danish Government. They were turned out in September, 1867.

19 Q. Was this contract with the Danish Government the first contract E. Remington & Sons had for these guns?

A. Yes.

20 Q. Prior to the summer of 1867 were there any fire-arms having the features above referred to in public use or on sale in this country by E. Remington & Sons, or any one else, to your knowledge?

A. No.

21 Q. If such fire-arms had been in public use or on sale prior to that time, by any other manufacturers, would you have known of it?

A. Yes.

113 22 Q. Prior to April, 1866, was any gun of E. Remington & Sons, having the features above referred to, tried before any army board, or was any such gun in existence so that it could be tried?

A. None, to my knowledge.

23 Q. And if there had been would you have known of it?

A. I think I should.

24 Q. Have you read or heard read the deposition of William C. Hicks, a witness for the complainants, in regard to the fire-arm described in the patent of John W. Cochran of May 7, 1872, and in regard to the differences between such fire-arms and the fire-arms shown and described in the patents of Burnside, Perry, and Lee, and in regard to the advantages of said Cochran fire-arm, and of top action in a fire-arm? And, if so, state whether, as a practical man, familiar with the manufacture and use of fire-arms, you agree or disagree with the opinions therein expressed.

A. I have, and I agree with the opinions therein expressed.

JEFFERSON M. CLOUGH.

Subscribed and sworn to before me, this 9th day of March, 1876.

W. C. WITTER, *Examiner.*

HELEN COCHRAN PHILLIPS, a witness of lawful age, produced on the part of the complainants, having been by me first duly cautioned and sworn to testify the truth, the whole truth, and nothing but the truth, in the matter of controversy herein, and being examined by Mr. BETTS, counsel for complainants, deposes and says:

1 Q. What is your name, residence, and occupation?

A. My name is Helen Cochran Phillips; I reside at No. 123 West 45th street, in New York city; no occupation.

114 2 Q. Are you a daughter of John W. Cochran, now deceased, the patentee of the letters patent on which this suit is brought?

A. Yes, sir.

3 Q. From January, 1859, to the end of the year 1865 were you

acquainted with the pecuniary circumstances of your father? If so, please state how you knew of the same.

A. I was acquainted with them by seeing him frequently, and by correspondence.

4 Q. About how often did you see him during that period?

A. During the winter months about once a week, on an average; during the summer not at all; the last two years we did not live in the city; then I did not see him so often.

5 Q. Please state what his manner of living was during that period, as indicating his pecuniary circumstances.

A. We lived very plainly, in a room, taking meals out; in a very poor way for a gentleman to live in.

6 Q. Did he, during that period, contribute to your support; if so, to what extent?

A. He did, but very irregularly and insufficiently; the money he gave us was our only regular means of support; what property we had was all tied up so that we could not use it; we had to contract debts which we afterwards liquidated.

7 Q. Were you accustomed to apply frequently to your father during that period for means of support in person and by letter; and, if so, can you state how he responded?

A. I often applied to him, personally sometimes, sometimes by letter; sometimes he responded and sometimes he did not; he generally said he would do to the best of his ability. I have a number of letters from him during this period, generally written in answer to requests by me for the means of support, and statements contained in them, of which I annex extracts, show as clearly and accurately as I am able to state it what his pecuniary circumstances were during that period.

115

8 Q. Did you ever know, during that period, of his circumstances being in any way different from what they appear to be from these answers to your applications?

A. No, sir.

9 Q. So far as your knowledge of your father's circumstances during that period extends, as derived by you from seeing him and his manner of living, and from information as to his circumstances derived from him or others, state whether the statements contained in his letters correctly set forth his pecuniary condition.

A. So far as I know, they do.

10 Q. After the fall of 1865, did you ever have any further knowledge of your father's circumstances?

A. No, sir; I never saw him after that to speak to him; I was married in the spring of 1866, and had no further intercourse with him after that.

11 Q. Have you any interest in this litigation?

A. None.

HELEN COCHRAN PHILLIPS.

(Complainants' counsel offers in evidence a certified duplicate of model in the matter of the letters patent granted John W. Cochran, dated May 7, 1872, No. 126,446; it is marked "Exhibit Cochran Model,

E. H. N. P.;" also a certified copy of file wrapper and contents, in the matter of the letters patent granted John W. Cochran, dated May 7, 1872, No. 126,446, marked "Exhibit Cochran File Wrapper.")

(1858.)

409 BROADWAY, NEW YORK, *April 7th*, 1858.

* * "I have been quite ill, and am now far from well,
116 but I must keep moving or starve; I leave again for Washington soon on others' business."

SPRINGFIELD, *Dec.* 19*th*, 1858.

"I arrived here last evening. * * * I am having some guns made, and have good reason to believe that I shall secure the Government contract; they have 200,000 old muskets to be altered into rifles and breech loaders; * * * what with looking after * * keeps me very busy, particularly on short cash allowance. I can get money by giving all away, and that I do not wish to do unless compelled to. * * * I am trying hard; I know that in due time I shall be able and will pay up all indebtedness to the last dime, & at the earliest moment. * * * I am sorry you had Howe sent for as I had another way of settling with him. He has advanced money on an account of my tunnel & iron welding patents & owns an interest in them, he has got discouraged. * * *

(1859.)

FRIDAY MORNING, (P. M. May).

"I returned last evening from Cold Spring. * * * I leave again this evening for Springfield, where I have some small arms making. Shall be back on Monday. I would hand you the $100 you asked me for with great pleasure, but cannot for a short time, as I cannot draw just yet for funds. I had to pay $105 nearly, I had for the life insurance which Howe held for $5,000 when the settlement was made. It is now in my name and I shall assign it to my family, and I am sure that you would not have wished me to let that go by for the sake of a little more pin money at this time."

NATIONAL HOTEL, WASHINGTON, *January* 11*th*, 1859.

"I am here again trying to get U. Sam to keep his promise
117 long since made, namely, to hand over some of the main sinews of war in the shape of a little of that which he says has not got — 'money,' but will do so soon; he owns the debt; so you must not think hard of a poor helpless man like me, if he cannot always come up to the mark at the moment. * * * You may not believe me when I say that I have pushed some business almost to destruction to get the little I have had the happiness to give you."

NEW YORK, *July 6th*, 1859.

"I have another cannon finished, and it awaits me to try it, which I am most anxious to do, as well as to start a lot of railroad boxes

which I have finished, as I cannot draw my funds until I do get things started. * * * It is dreadful, tiresome, & vexing to be shut up this fine weather. All I can do is to think & invent something, of which I have too much already for any good. Just as soon as possible I will remember that $100 you are looking after; this Chicago bill will foot it some, but not half so much as my lameness."

WEDNESDAY (*Sept.* 21), NEW YORK.

"I enclose the $20 you ask for, and only regret that I cannot make it much more. I had just drawn $125 to pay my hotel bill for ten weeks, now money due; I take out $20, which leaves me only $5." * * *

NATIONAL HOTEL, *Nov.* 19, 1859.

"On my return from Springfield I found a note from my patent agent to report myself here without a moment's delay, as there was a hitch in issuing one of my patents that had even passed the examiner. (It was the most important one of my several expansive shot.) I have argued my own case before the Commissioner, & the case has been decided in my favor. * * * I should have, for the present, at any rate, lost my best patent had not Mr. Bennett helped me to $100 out of his scanty pocket. * * * The
118 reason why I am so very tight up for money just now is that I refused to assign the patents to Howe; not that I wish to deprive him of his rights to have so much of what may be made (one-half); he thought to force me by refusing to advance any more, and when there *is* some large bills due on the guns which I have ordered by his request. The fact is, he wants to get hold of the patents & then let me look to him for my share." * * *

WEDNESDAY MORNING (*November* 9).

"All I have done is to spend money in patents & experiments, & all the funds were furnished by Howe, & he is very shy of me. I can tell you in a word I have done all I possibly could, and that little was what I could sponge out of the bill of expenses."

WEDNESDAY, P. M., *Dec.* 28.

"I have most kindly to thank you for your kind wishes for my happy and merry Christmas. * * * New Year's will, I fear, be spent the same way, unless I get rid of my cough & pressure on my lungs. I am, per force, out to-day for no other reason than to try and keep my half promise with you on the first of January, but I ought to say you should not make much dependence upon it, as it is quite impossible to get any one to listen to business of a speculative nature until after the holidays, unless—I gave wish to throw all away for a few hundreds, & that, I know, for obvious reasons, you would wish me not to do."

SATURDAY (*January* 28).

"I duly received your kind favor asking after my health; at the time I wrote you last I was much better, but I have taken another bad cold and am compelled to keep the house, but not in bed. I

can attend to my drawing, which I have any amount on hand. It is bad for me just at this time not to be able attend to my gun and shot. It is admitted by all officers that I have some most
119 valuable patents. I am sure that my shot & shell will be adopted, but it will be impossible for me to get out much until warm weather, unless I can go South. There is nothing to be done at Washington until Congress gets to work. If it was possible to raise the funds I would try my luck in Europe & see what the great emperor would say." * * *

JAN. 18TH, 1860.

"On my return to town I found your kind note; after seeing you on New Year's I took to my bed suffering much from erysipelas in the head; and as I could get no attendance where I was, I had to leave town to get proper care & nursing. I came very near it this time. I did not remember anything for days; I am very much better now, but unable to attend to business much, if I had any to do."

FEB. 9TH (1860), MONDAY.

"Your kind favor of 31st came to hand to-day; I am most of the time housed; this weather is bad for me. You asked me for what I have not got (money); I have not had $50 in my possession since I sent you that last $200, and is impossible for me to say when I shall see any more. I have got entirely behind with all of my affairs, but hope to pick up again if my health will permit."

TUESDAY, A. M.
Postm. New York, Feb. 14th.

"I hasten to reply to your last note asking most urgently for $50. My dear child, be assured I should with great happiness enclose it if I could possibly. * * * I beg to ask you in the name of common sense how you think I can get money from nothing. I am in no business that can ever return a cent without large sums first being expended, & that I cannot get. I have a lot of patents, say you; but if you will find me purchaser for them you shall have 95 per cent. of all that can be got. I cannot find any one to advance me a cent. To prove to you that I have not any means, I have
120 not been able to pay a few little debts of honor—borrowed money in sums as small as $1.50; I have just got some pamphlets printed about the gun, but I could not have done so had I not convinced parties that was the only chance of getting what I already owe them."

THURSDAY, (*April*) 19*th*.

"It is quite out of my power to raise the money, or I would do it, of course; therefore I suppose it (life insurance policy) must go by default, unless some one was willing to advance the cash part of the premium, & let me give the notes and take a lien on the policy from me as security. * * * One thing is sure, I cannot raise a dime to pay the policy; took the last dollar I could get to go to W. the last time to try & get my bill through the committee to build guns,

and I was in a fair way. Gen'l Scott gave me a strong letter to the Sec't'y of War on the subject, but I was taken down so bad that I never delivered it, and had to drop all & get home the best I could. It is well I did, as I could not have come had I waited 2 days longer. * * * I am very much better; can sit up half of the day, & hobble about the room & down stairs with crutches, but I never was so reduced before. I think I shall get out again when the warm weather sets in."

EVENING OF THE 23D INST.
(Postmark looks like Ap. 24.)

"I am sorry to be compelled to say that my lameness has returned, and worse, if possible, than ever. One of my legs seems to be withering; the muscles are all gone or dead. I have a little more cold to night; my chills & fever has returned. I am dreadful weak—can just manage to stand. * * * It is quite impossible for me to pay the premium. What I might do if well I cannot say. I am well taken care of; have every attention possible, but it is most discouraging, I assure you."

121 APRIL 13TH, 1860.

"My only reason for keeping my residence private is, I do not want anybody to call upon me, either on business or otherwise. I will tell you frankly where I am, & where I have been for some months, & intend to make it my home what little time I have to remain here (which I hope will not be long, unless I am freer pain than I have been for this past month). * * * I am in some respects better, and in others worse. My cough is much better; no fever, but dreadful weak, & tormented with the gout or some other pains equally bad. I cannot stand alone, or move without help or crutches. It is with difficulty that I can sit up long enough to write this. As I advised you, I wrote or sent word to * * * that I could not possibly meet the premium—about $90. It will be a pity to have it run out, because I have but little doubt it will soon be worth its face. At the best, my constitution, as well as my mind, is dreadfully shattered. I try to think of some of my plans, & I find I cannot keep two ideas a minute; my sight at times leaves me."

MONDAY.
(Postmark looks like Ap. 10.)

"I should have been to see you ere this had my health permitted. I have been now 3 weeks under the Dr.'s hand, & to-day is the first time that I could sit up long enough to write a note. I was taken in a perfect state of health with cold, chills, & burning fever, which settled upon my lungs, & they have been badly congested; my cough, dreadful; my fever is nearly broken up, & I feel easier, but very weak, as you may, not having eaten a pound of food many days. When taken down I weighed 180; I cannot weigh 150. My dear, as for money, I never saw a darker day in that respect. I have not realized a cent on my patents. * * * My life insurance will run out in a few days, unless about $100 is paid. I could not do it to save me."

(Should be Ap. 10, 13, 24.)

122 (1860.)

JUNE 28TH, 1860, N. YORK.

"When I told you that I expected to receive money I had good reason to believe I should. I had made a verbal agreement with parties to put in $10,000 and push on the gun business; that understanding was founded upon the promise of the Sec't'y of War's promise that I should have a fair share of the $50,000 that he had asked Congress for to be expended in experimenting in rifle cannon and hollow projectiles. * * * It was supposed the bill would pass Congress as a matter of course, but there was not a cent appropriated for that object. That put a wet blanket over me all at once. That and the fact that Howe told everybody that he would not put in another cent unless the patents *was* all assigned him caused the whole affair to fall through, and I am just as low down as ever. I have lately made a very important improvement in wrought-iron shell, but I cannot raise the funds to patent it without giving it all away; nevertheless I shall keep trying, and trust. * * * As to the amount that I received from Howe, which I gave a mortgage for, was just $5,000, and no more; that was given to me in small sums running over 2½ years, and all the funds that I had to meet the bills * * * came from that source. I had no other chance to get a dollar. You all lived two years out of it."

SUNDAY EVENING—W. A. V., BROOKLYN.
P. M. July 23d, N. Y.

"I have been confined two weeks to-day with a very bad attack of inflammatory rheumatism in my feet and legs; otherwise perfectly well; never could be better, and have been for a long time. I am better now, and hope to get out in a day or two. * * * This lameness seems to be 'chronic,' as it goes and comes regularly about so often * * * soon as I can that long-promised $50.

123 My affairs are knocked in the head, at least for the present, in this country, by act of the last Congress. * * * I am trying hard to get means to get on the other side of the water, where I believe I could at this time. * * * If I had $500 I would go at once. * * * Howe will not put in a cent, and tells every one so." * * *

NEW YORK, *July 25th.*

"I have and still am suffering very much from inflammatory rheumatism; all I can do gives no relief, and I expect it to hold on during the warm weather. I have laid days and nights on the bed unable to be moved even in a sheet. I was much better the other day, and was in hopes to have got out, but am flat down again, but not so bad. Well, it matters but little; my work is all stopped; the parties will not even finish the new guns commenced since the Government has closed the polls. * * * I am sorry to say it, but I am positively entirely broke, and do not know where to raise a dollar. * * * I have a pile of patents, but what are they good for? No one seems to have any confidence in anything I have.

* * * I tell you, it begins to look very dark and blank ahead; there is very little more to expect of me. * * * If I had not this retreat to—what should I do in my present helplessness with strangers and no money?" * * *

AUGUST 28TH, NEW YORK, 1860.

"I wish I had some money to send you, but I have not; can only get just enough to meet my expenses, and have to stop—not at the first-class hotel—but times may improve for the better."

SEPT. 27TH, 1860, BOSTON.

"MY DEAR: Soon as possible I will send you some funds; at present it is out of my power, not because I have not got the best shot in the world—that is admitted—but I have no patents yet, and will take money, & that hangs fire, I suspect, intentionally,
124 to drive me to better terms. I could not possibly raise the means to pay the taxes, or I would do so. * * * I shall somehow get through with it, but I fear I shall at the same time get through with most of the right. I do wish to hold on to this affair, as I never shall make another like it. * * * I have not bought myself a cent's worth since I saw you, except a pair of shoes & a summer hat; but still I do not despair of making a fortune yet."

(1861.)

WEDNESDAY MORNING (12 *Jan.*),
W. A. V., 2d House North of Myrtle Av.

"I cannot see any daylight ahead. It is an old adage the darkest time just before day. It may be the same with me; if so, it ought to be nearly daylight now. If I only had the means to introduce my shot I know success would attend me; but to raise a dollar seems quite impossible upon any security. Congress will make appropriations in this line, & if I could be in W. to test the shot (which I am invited by the Gov't), and get it properly before the committee, I should get something, without doubt. * * * I shall still try hard, & hope something will turn up yet. Mr. B. will, if possible, help me to a little, if nothing more than to get on there myself. I think I could convince them of its importance. * * * I am able and willing to work, but I cannot move anything. I am, of course, dunned by my creditors, as they are as hard up as myself. I owe Dr. R. $16.50. He send-Joe R. once a month regularly." * *

(NEW YORK) MONDAY P. M.

"Through a letter from Lieut. General Scott I have raised a suit of clothes and money to take me to Washington. If the General approves of my shot it will be a godsend to me." * * *

125 NATIONAL HOTEL,
WASHINGTON, D. C., *Jan. 17th*, 1861.

"I am here once more. I have seen General Scott, and he has referred me to the Ordnance Board. * * * I am trying to kill two birds with one stone. I am acting as agent for Warner's pistol,

and I think I shall be able to sell several hundred here. I get $1.00 on each one sold. This is the first time I ever worked for a commission in selling pistols, or anything else, I believe; but I am willing to do anything that is honest to get a little money. * * * My experiments will take place at the navy yard. I shall send the guns from Boston on at once and return with them. * * * I have to give up one-half of the patents to get this start, and borrow the money at that; but what could I do. To stand still was death. * * *

WASHINGTON, *Feb. 8th*, 1861.

"I duly, etc.; have the greatest difficulty to get the means to meet the bare expenses, & they are paid by order and not by money sent to me. I have been deprived from making any progress this week, owing to a fall I got last Monday in mounting the gun. To save expense, I was at work helping the men and fell from a platform, altho' only about six feet, but I hurt my back very much, and have been unable to hardly move since. * * * I am much better, but it hurts me very much to walk. * * * The experiments won't be finished for a month or more. * * * The trials are to be much more extensive than I first supposed, and the Lord only knows when a favorable report can be had, but not for months. What I shall do for means in the meantime I know not. I fear all my interest will be gone by the time that it is approved of, if ever. Every dollar I borrow costs me ten, provided the patents are good." * * *

"I duly received your kind favor of the 4th inst. I should have answered it sooner could I have got the means to grant your 126 request, but it has been impossible, as I have to get all I do from parties in New York. I have the promise for an order in your favor for $50, so you can get it on Monday next." * * *

FRIDAY A. M., P. M., *Feb.* —.

"I have just returned from Paterson, and have to leave for Spuyten Duyvil Creek, the place I went the other day. * * * I am trying, but have a heavy heart. Smith has gone to W., and seems not to take much interest in the affair. I have hard work to get the means to run about to the several places I am compelled to go. I never did see the time before when it was utter darkness. What is to be done I know not. I have no hope to get anything for a month. I have $150 that will be due me about that time from another source."

SUNDAY, —.

"MY DEAR CHILDREN: I am in a very bad condition. I have to be lifted out [and] into bed, both legs and feet are helpless, and the pain cramps and my stomach is dreadful; my bowels at times tie all up to knots. It is imflammatory gout; this particularly unfortunate at this time, as if I was out I might hook or by crook manage to get you a little, but as it is I know no one on earth that would help me to a dollar unless a return for it. This is the worst attack I have had. * * * My fingers cramp into all sorts of shapes.

* * * I have been an hour trying to write this. * * * War is upon us. If I could keep my health I could do something, no doubt. I have not sold a single shot to Gov't [or] any one else." * * *

SATURDAY A. M.

"I find myself very much better. * * * My legs & feet are very weak and tender, but the gout has left, & I hope never to return. If I am able shall go on Monday to Coney Island to commence firing from the new rifle cannon we have there, & if
127 the results are favorable, I feel in hopes to be able to make arrangements to get a little money at least, or draw so much per month for services, but what it will be I have no idea. I have no need to say at present I have not a dollar. It took the last cent to pay the Dr., & he only charged $1.50, coming over here from N. Y. entirely on my acc't." * * *

WEDNESDAY, *April 3rd.*

"My shooting works well enough, but that brings no money. The fee on the life insurance of mine I suppose is about due, but I cannot meet it to save my life. I am trying hard to get some business to do, I care not what."

WEDNESDAY P. M., *Apr.*

"I have a little hope of doing something with the shot. I have been hard at work, I can assure you, & without a dime in my pocket. I have exhibited my projectiles to the officers of the N. Y. Naval Brigade. They appear much pleased with the principle, and want the shell. The Col. gave me an order yesterday for 200 shell, and say * * * & if they meet with favor it will be sure to be adopted. * * * I think they will send for me. The worst of it is I have no means to make the shot in time; they want them now." * * *

FRIDAY P. M., *May.*

"I am trying hard in every quarter to get the shot brought to life again, & I trust with some hope of success. * * * I have written to many parties about it; have been before the committee of safety to-day; had quite a talk with J. J. Astor on the subject. I think a board will be appointed to go down to the island to witness my firing. If I had the means to go about to lay the affair before the different committees of the many States, & could get up cuts & description, I could do something, but I have not. Never have I felt the value of a dollar as I do at this moment. I cannot afford to ride all the time. I walk my poor old legs hard,
128 but still I hope to recover somehow. My only chance is through my improvements in projectiles. Nothing will sell except munitions of war."

SATURDAY.

"I am very sorry to be compelled to inform you that it will be impossible for me to let you have what I promised to-day, or can I get out of the house for 2 or three days. I was at Sandy Hook

firing my shot & caught a dreadful cold, & quite sick. But that is not the worst of it. We made a total failure, which dreadfully distress- me. What the consequence will be I know not. We have a large quantity on hand, & if the Government refuse to accept them it knock- all in the head. Smith feels dreadfully, as he must stand the loss. If I was well otherwise this would make me sick. If this should fail me I am down. I shall try hard to get over the trouble, but we must make a great loss of money & prestige. We were firing from a very large gun, & heavy charge, which I fear the shell never will stand."

MONDAY A. M., 221 Carlton Av.

"I am better, but cannot get out yet; have sent to the city for medicine; wrote Smith, begging to send you $50, this p. m., but have but little hope, as he is dreadful sore at a dead loss of $5,000. It is awful. I feel so bad that if nothing else I should be sick, & am almost afraid to meet Smith, but shall as soon as possible, & meet my fate."

MONDAY A. M.

"I feel so distracted that I hardly know what to do or where I am. I feel as though all mankind was down upon me. * * * I am over to-day, and have hit upon a little chance. I am offered a small commission to find out where some guns are in the custom-house, and hope to succeed." * * *

THURSDAY.
Postmark April 24th.

"I am much depressed about money; cannot get even $20 to send off my caveat to secure what I believe to be worth fortunes."

129 TUESDAY, 5 A. M.
(P. M. Apr. 29th.)

"I did not call upon you last evening for the very best of reasons—I had nothing to comfort you, nor do I know that I shall this evening. I have strong promises. I cannot think but to-morrow will bring it at any rate in a small sum with further hopes. I am hard at work with my drawing, and a small tin model to test the vacuum to be made through the tube. If all should be right well I can move; but that will take at least two days. I have found a man who will get up the model. He expects his money when done, and so he will get it, if it works well; otherwise not. I have not told him all that, of course. I fear every moment that I shall be superseded. I cannot move my papers or myself for the seat of Gov't. I am in hopes to do something with the British Gov't yet." * * *

SATURDAY.
(P. M. May 31.)

"I received your note some time since; how long I do not know, as I have been wandering about for a long time, nearly mad and without a cent, except as I could run against some poor wanderer like myself. * * * I have no hope." * *

WEDNESDAY.
(P. M. July 10.)

"I cannot move a peg. I am making a few drawings for a man getting up a new machine, and he is nearly as poor as I am; he owes me a few dollars, and I will push hard to get some." * *

MONDAY, 51 Pine St.
P. M. effaced, Nov. I think.

"I have not seen Mr. S. since last Thursday; do not know where he is; we have not as yet received any funds from Gov't, except $285; they owe us some $12,000, but we cannot get any return or reply to our letters. Soon as they remit I will. * * * We have not paid the workmen, and they are knocking very loud at the door." * *

130 WEDNESDAY.
P. M. Nov. 20, I think.

"I am waiting yet uncertain what will be done; the Gov't say flat-footed that they will pay no such price as we have charged, and that Dahlgren had no authority to give orders. * * They have promised to make me an offer to-day; of course I must *except* what they please to give; it will be a bad job for Smith; he will lose in the whole operation at least $10,000. * * *

"I shall know my fate to-morrow, no doubt; our just claim is $10,247; if we get $5,000 it will — all I hope to do; not a cent of course will be justly due me, but I shall insist that I must have some. I am not of course entitled to anything unless there is a profit after paying bills, but I must live somehow."

(1862.)

SATURDAY, A. M.
Postmark June 14th.

"As I wrote you, I shall be up to-morrow; I shall do so, unless I am lame; my left foot is now very painful, and may wholly deprive me from locomotion before night. In the name of heaven what will become of me if I am confined to my bed? * * * If I had same of Reynold's cure for gout I could check it, but it costs $2.00 per vial or glass. * * * I will do all I can to get up again, and still hope."

WASHINGTON, *Wednesday.*
Postmark June 18th, 1862.

"I am pursuing my business, and friends are helping me, but I am advised by no means to think of going to N. Orleans this time of year. I shall try hard for something at any rate. I have seen the Sec't'y of War & he says he will do what he can if a chance offers. I also told him that I was making a rifle, & explained what (but not how) it would do. * * * I shall return soon & look after it & wait the result what may be done here; but what
131 are you all to do in the mean time God only knows. The thought almost makes me sick & faint. The Dr. will do all in his power, & will lodge & feed me on tick; that is something."

JUNE 23d, MONDAY.

"I should have been up to see you yesterday could I have walked, but that was impossible; my left foot and leg is quite bad again, but not so to confine me to the house. I can limp to the shop where I am making my rifle. * * * I am expecting favorable news from W. every day. * * I hardly know how I live."

3 5 LIBERTY ST., WEDNESDAY.
P. M. looks like July.

"I am very hard up. * * * I am making, and shall soon have done, a new breech-loading rifle which will be good in itself, but what I may get out of it is quite another thing."

JULY 7th.

"The heat & lameness rendered it impossible for me to visit you either yesterday or to-day, but will do so at the earliest moment. I am very lame in my left leg. * * * I am working hard and things look pretty well for at least a small raise."

THURSDAY, P. M.
Postmark looks like July 17.

"MY BELOVED CHILDREN: I am well & am trying to do some good; have found some rifles & hope to make at least a few dollars. I am also trying to get my new rifle out."

SATURDAY, *July* 26, P. M.

"I never knew what it was to be utterly penniless & friendless before. I have got the rifle done & works well, but what I can do I know not."

132 P. M., New York, May 5.
TUESDAY, A. M.

"I was disappointed on my return from Bridgeport last evening, in not finding a note from you. * * * The gun looks well and has many friends. * * * I have a very bad attack of gout in the other foot and leg; it commenced about an hour since, and now cannot step. I walked down town perfectly well. What shall I do? I am wanted at B. and at W. about the patents."

MONDAY, *May* 11, 1863.
95 E. 13th Street.

"The weather is very delightful and has driven my old enemy the gout nearly out of sight, & feeling good riddance * * * I shall go some time this week to Washington, I have no fear, but money is very tight with me. I cannot sacrifice now for 3 or $400 what will in a — months be worth as many thousands, & I know it."

5 A. M., WEDNESDAY.
Postmark, May 20, 1863.

"I am somewhat disappointed in bringing out my gun so soon as at first expected, and shall be by an accident to the workman, * *

but I have full faith in success in the end, & thus am very sorry (on your account principally) to be compelled to give it away before the invention has assumed any importance, * * * but the funds you must have, & so you shall, if I can get $200 for one-fourth of the patent right; I will offer it to a party this day."

P. M., MAY 25, 1863, Sunday (bad weather.)

"My gout troubles me considerable all of the time mostly in my left arm & side, but to-day in both feet a little, I hope it will not shut me up. * * * The gun is all right, so far as it goes, but not quite finished. It seems impossible to get the last touch
133 made. I feel safe of success, providing I keep above water a little longer; I have no need to repeat I am doing all I can."

95 E. 13TH.
P. M., June 15, 1863, P. M.

"I have been very ill indeed at Washington, where I went two weeks ago to try the patent suit; I put up a private house, as I could stand $3 per day at the National. * * * I got a bad cold, & it settled in my eyes, & I have been quite blind, unable to read. I managed to get back here last Thursday night. * * * My two patents are at last granted, after a hard fight."

SUNDAY, at the Drawing Board.
P. M., New York, June 22, 1863.

"I am very happy to say I find myself very well & in good spirits (but dreadful short of money), and have good faith to believe I shall not always be in that fix. * * * The gun has been made outside at a private shop & at the private expense of C. * * * I felt very bad not to have been able to remit funds to you last Friday, but it was quite impossible, * * * but I will have it soon & will send it the moment I receive it."

WEDNESDAY, 11 A. M., 95 E. 13th Street.
P. M., June 25, '63, N. Y.

"I am confined to the room with a very bad foot. I cannot raise it from the floor except by pulling it up with a cord, as you have seen me; otherwise I am perfectly well."

THURSDAY, *July 2d.*

"I am under the painful necessity of informing you that I am confined to my room—particularly in my right foot and knee—of a bad attack of my old complaint, the cursed gout. I cannot move, only with crutches; was at B. yesterday, and never was better, and am still, with this exception. Just before I left B., 8½ p. m.,
134 to return I felt well; knew the warning too well, and before I arrived I was in such dreadful pain by the motion and jarring of the cars I could not have suffered much more had my foot been held in the fire; * * * but this takes me down, when I have so many affairs just budding into life. * * * I have no money on hand to send; if I get out to-morrow I most likely can

get some, * * * notwithstanding I have hardly a dollar. I am so confident in the future that I feel as though I almost had a fortune in my hand." * *

SUNDAY, 9TH, '63.
P. M., N. Y., Aug. 9, 1863.

"The fact is I have been, and still am, perfectly — with the heat and very down-hearted; I have not life in me to read or write. * * All business is at a stand-still; I have done nothing, or do I expect to, for weeks; I have been entirely out of money for days; yesterday I got $35.00, and will send you $25.00 of it to-morrow. * * * I hope to send you $25 on Friday; I am trying, and hope to succeed so soon as parties — to the city, to get a monthly fixed pay so you will get funds regularly." * * *

WEDNESDAY, A. M.
P. M., New York, Aug. 12, 1863.

"To-day is the first time that I have attempted to reply to about 20 letters laying on my table; I have been so depressed by the dreadful heat that I could not even address a paper to you. * * * Hot as it was yesterday, and so weak I could hardly stand, nevertheless I met the commissary gen'l, * * * by order of Gov'r Seymour, to test my gun before a board of officers; I was on hand at 8 a. m., and explained the arm, but told the gen'l I was quite unable to fire. * * The trials were perfectly satisfactory. * * * All this is very well, but when and how to get them made I know not."

135 THURSDAY, 5 A. M.
P. M., New York, Sept. 13, 1863.

"I, with much trouble, managed to send you $50 yesterday per express; * * it left me without hardly a dime, and nearly two months' rent due, which makes the old woman look blue at me; * * however, I am, to all appearance and feeling, perfectly well in every respect; never could walk better or faster."

SUNDAY, P. M.
P. M., New York, Aug. 27, 1863.

"I have at last got a firm in Newark, N. J., to take hold of the rifle, but they will not get any guns out for 3 months; be assured I am doing all I can with my crippled means; I will not fool away these patents, as I know they are valuable. * * * I will try and send you $100; * * I could get the money, but I know you do not want me to throw away for a mess of pottage what I have been fortunate enough to invent, and working night and day to bring out and develop."

TUESDAY, P. M.

"I have just returned in great haste and with very unpleasant news. A lawsuit has been commenced against my patent for breech-loading rifles at Washington to stop the granting of my last (and most important) patent, and also to prevent Government from making my arms. The parties are rich and powerful; whether my friends

will go in to buy a lawsuit, I think doubtful. * * * If I had plenty of means they would not open fire on me— * * but I am poor and helpless. It seems hard, after so much hard work, to be broke down. I feel like giving up. I have $50 to meet expenses—traveling. I enclose $25."

(1864.)

BRIDGEPORT, CONN., *Feb. 24th*, 1864.

"I hope to [be] able to resume payment again soon. If I
136 can get through for a week or two I hope to shape things better. It seems strange that so good inventions as I really have should go begging, but it is nevertheless true." * *

SPRINGFIELD, MASS., *March 4th*, 1864.

"I feel much encouraged again, and think I may at last interest a party now here with me, and I believe I shall get the highest prize. * * * My dear child, I have been very down-hearted for some time, but again feel new hopes and spirits."

SATURDAY EVENING.

"I am entirely out of funds, I assure you. * * I cannot move anything; the Government admits my inventions to be good, but unless I am prepared to make the goods it is of no use talking. * * * I must pay $15 here per month or leave. I do not know how to do either. * * * You speak about the life policy; if $20 would redeem it I could not raise it."

WEDNESDAY, A. M.

"MY DEAR CHILDREN: I have tried for this last year in particular to bring out something that would benefit us. I have succeeded in making several good inventions, but what of that without money to bring out and put to use. I have found parties to advance the means to get patents sufficient and to support me; but, instead of using the money as I agreed to do, I have been compelled to support you out of it, and have neglected the business. I have made one excuse and another why the patents were not forthcoming—always in hopes that some good luck would turn up that would get me out of the trouble and I would go on, but the fact is I am now in great trouble—models partly made and not paid for that was supposed to have been in the Patent Office months ago. At last a patent has been granted for one of my inventions when I had sold half for the means to patent, and not a cent have I paid towards it.

I have been brought out, and the result is I have forfeited the
137 confidence of all parties, and liable to action for the return, at least, of the funds; this is the darkest and coldest day yet for me. I went to B. yesterday to get some work done, but they would not budge an inch until I paid up the back money. I have had it and paid it to you these last two months, including my own existence."

JUNE 5TH, 1864, No. 4 Second St.,
First house from Bowery.

"I moved here on the 2d inst. I have got a small back room, third floor; quite comfortable; good bed and clean room at $12 per month. I looked everywhere, and could not find anything less than $18 and $20; they expect to get $20 at 95. * * * I am and have been in good health; have worked very hard, but cannot effect my object. I am now making drawings and acting as a kind of half adviser in a machine shop, to keep just soul and body together. I am good for nothing in this way, as it is impossible for me to give my mind to anything but my own plans."

JULY 12TH, 1864.

"I drop a line to advise you I am still living, but the hot weather uses me nearly up. * * * I have offered to do all I can in any of the forts. I can work cannon, and if a friendly shot should settle my accounts it would be quite as well. Money is all going to nothing, and I have not even got the rag that does pass. I am discouraged of further trying. My eyes trouble me much; that is, seeing long on white paper; after looking closely for a few minutes all looks double and dark; but my general health is good."

TUESDAY, 13TH, 1864. P. M., Sept. 13, New York.

"My health could not well be better physically than I was ten years ago. All I have to trouble me is my eyes; they fail
138 me; I cannot look on white paper but a few minutes before all looks dark. I manage to make a few drawings and get a little money. My only hopes is gauger, which I think will soon be adopted."

(1865.)

SUNDAY, 2D, 1865, No. 8 Fourth Avenue.
P. M., New York, April 2.

"I look upon this as my last and only chance, and I do not want to be urged to fool it away. It all stands clear as yet. I have not sold a fraction of any of the patents; therefore you must know I cannot have much ready funds. But you, like all womankind, think * * * I hope."

THURSDAY. P. M. June 2d, New York.

"I have not received the funds I told Mr. Seeley I expected to, which, of course, am very much * * * But the 1,000 guns will be made, and I shall receive my royalty of $2.50 each arm. But it will be months before a gun will be finished. I shall, I trust, be able to send you some funds ere long."

10 A. M. NEW YORK, *June 7th*, 1865.

"MY DEAR CHILDREN: I arrived via boat from Norwich, where I have been looking up evidence for a law fight. * * * I am stopped before commencing fairly; how it will turn I know not. I have no fear if my friends will keep me in ammunition, but men

of capital mortally dread a lawsuit, & well they may. * * * My immediate prospect has been somewhat cooled, but I shall struggle on, as I know I have a good thing, & hard to beat. All I fear is that my backers break down from fear."

FRIDAY, *June 16th.*

"I send per express the enclosed $100; will do likewise soon. * * * My lawsuit comes off soon, & I guess I shall win,
139 but cannot tell what it will cost; all is at a standstill until that is over. * * * I am well, but low-spirited & sad, I know not why, hardly. I do not speak or move about much."

MONDAY, 6 A. M.
P. M. Aug. 7, New York.

"I forward to you by express a letter containing $100, the best I could do. * * * I enclose you a circular sent me from the consul gen'l of Switzerland; also a letter inviting me to enter my arm for the grand competition of breech-loading fire-arms. * * * I wish I had the means to be present. I think I could have a good chance. I would give half of the invention to be on hand. I shall, however, send a gun."

437 BROADWAY, *Nov. 8th.*

"Because I have had great success in getting a contract, and got the arm in a measure adopted at great expense, & at great sacrifice to get the money necessary to start the manufacture of tools, which will cost at least 50,000 before a gun will be in the market. I am but little better off than before until the guns are in the market. * * * I shall be as poor as ever for the next six months. * * * I have put up everything to win. I have made a grand bargain, it is true, but cannot draw over $200 per month. I find it impossible to get on with less than $3 per day."

437 BROADWAY, Friday A. M.
P. M. Nov. 16, New York.

"I have for years struggled to get the means to live and help you all the best I could. You must suppose that I owe many debts of the sacred nature, and most of the money I gave to my family when I was in no business whatever. Many of the parties that helped me are now as poor as I was at the time when they helped me, & you would not advise me not to honor debts of that nature at the first moment possible."

140 NEW YORK, *May* 30, 1876—2.10 P. M.

Present: Counsel for complainants.

WM. C. HICKS, recalled for complainants, deposes and says:

Q. 1. Have you been heretofore examined as a witness in this case?

A. I have.

Q. 2. What do you understand constitutes the breech of a fire-arm?

A. It is that part of a fire-arm which contains the cartridge chamber at the rear end of the barrel, and which immediately resists the lateral force of the explosion of the powder when first ignited in the chamber; and in muzzle-loading guns, closed at the rear by a fixed plug or breech pin, it also includes said breech pin, which resists the force of the explosion in a line with the axis of the barrel.

Q. 3. What do you understand is meant by the word "barrel" used with reference to guns?

A. It is that part of a gun in which the powder is burned, and through which the projectile is forced by the powder, and by which it is directed toward the object aimed at.

Q. 4. What do you understand to be that part of a breech-loading fire-arm and its function which is known as a breech block?

A. It is a piece of metal which closes the rear of the barrel or cartridge chamber, is movable in reference to the barrel, generally for the purpose of introducing a cartridge into the breech, and, when the cartridge is in, resists the rearward force of the explosion of the cartridge.

Q. 5. If a full-size arm should be constructed according to the description and drawing of the Cochran patent, and provided with a lever, C, for opening and closing the breech, would such lever operate both to open and close the breech in case the arm were constructed of metal?

141 A. Yes, if the parts were rapidly moved, the momentum of the metal of the breech block would cause it to close.

Q. 6. State the advantages in a fire-arm of having the breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point.

A. It enables the operator to introduce the cartridge into the gun without obstruction from the breech block when open, and to use any proper length of cartridge without changing the range of motion of the breech block in opening, since the range of motion in opening the breech block can be made very short, and the breech block enters within the metal of the lock frame and is nearly covered up by the frame when the arm is being loaded.

By pivoting the breech block in rear of the breech so as to move backward and downward in opening, the bulk of the metal of the breech frame may be below the line of the bore of the barrel, and the breech frame may thus be made stronger and less bulky, and at the same time shorter.

Examination adjourned to 31st inst., at 11 a. m.

NEW YORK, *May* 31, 1876—11 A. M.

The witness HICKS continues his answer to Q. 6 as follows:

Pivoting the breech block so as to swing backward and downward in the arc of a circle, around a fixed point, enables the breech block to move substantially parallel with the axis of the barrel at the time of closing its butt, and by this movement to force the cartridge into the chamber in lines parallel with the axis of the barrel, saving by this means the friction which is produced by the movement of the

breech closer over the butt of the cartridge which results from constructing the breech closer to slide at right angles to the axis of the barrel in opening and closing the breech.

142 This substantially longitudinal movement at the time of opening and closing the breech gives to the swinging breech closer the advantages which are possessed by what is known as the bolt breech closer, viz., that the cartridge can be forced into the chamber by the leverage obtained by the hand of the user as the block revolves on the pin, so that it is not necessary to force the cartridge home in the chamber by the fingers (a very difficult thing to do), and besides, that the breech closer can be moved directly away from the cartridge after the explosion without encountering the friction which sliding over the end of the cartridge produces. Again, the pivoted breech block referred to possesses the advantage of a breech block sliding at right angles to the barrel in closing, viz., in that it drops into the breech frame out of the way, and permits the introduction of any length of cartridge desired without obstruction from the breech block, or metal in the rear of the barrel in the line of the bore required by other constructions of breech blocks, particularly that of the bolt system; moreover, the swinging breech block referred to, in consequence of the support given by the pivot upon which it swings, and because it has a movement in the arc of a circle around a fixed point, and because it may be made in the form of the sector of a circle substantially, is capable of being supported by a brace located below the line of the bore of the barrel, and behind the pivot of the breech block and covered up substantially by the breech frame, and also out of the way of the cartridge, whatever its length, when being introduced into the breech. By the kind of breech block referred to, the movement of the breech block and of the brace may have the shortest range, controlled by the diameter of the cartridge and position of its pivot, and not by the length of the cartridge, as in bolt guns.

Q. 7. What do you say as to there being a description in the Burnside patent of a modification requiring a "bolt H?"

143 A. The patent says that the "breech pin is curved from a center within the axis of the barrel, and is made to bear upon a seat, a small portion of which is correspondingly curved a short distance above and below the prolongation of the axis of the barrel; the discharge is thus caused to retain the breech piece or chamber in its firing position, as it cannot be withdrawn therefrom until the movable cone seat or breech pin be advanced into the position seen in Fig. 2. This is also an assistance in throwing the cone seat forward, and of itself under ordinary circumstances would be sufficient to retain the breech piece or chamber in its firing position. But as we may want to place the projecting portion of the curved surface lower down, as at T for instance, and also for additional security, I have adopted the following device for the purpose of more unfailingly accomplishing this end. H is a bolt." The patent then goes on to describe this bolt the way it is used. Now the words in the last quotation "But as we may want to place the projecting portion of the curved surface lower down, as at T, for in-

stance, and also for additional security, I have adopted the following device for the purpose of more unfailingly accomplishing this end," are all the words in the specification which I can find as referring to any modification in the arm, from the arm shown in the figures of the drawings and described and claimed in the patent. If we examine the drawings we find no trace of any such modification, for in figure 1, and also in the movable breech of figure 2, the curve referred to below the line of the axis of the barrel is distinctly shown in the former by dotted lines, and in the latter by a full line. On examining the seat in the face of the rear of the breech frame shown in figure 2 in section we find no projection whatever below the axis of the barrel, but, on the contrary, said face is shown by a straight line tangent to the upper portion, which is curved, and running not parallel with the face of the breech when the breech is in
144 firing position, but at an angle thereto inclining backward at the bottom, and carrying said face away from the breech. To correspond with the modification above referred to we must find said curved projection near the point T marked on the sectional drawing figure 2, the same as though the circle of the breech pin and seat had been struck from a centre further from the breech seat, but still in the axis of the barrel, but giving the same amount of projection to the curve at T as is shown in the drawing Fig. 1. The modification referred to preserves the curved projection, and only changes its position, and is not the form shown in the section figure 2. The inventor says that the bolt H was adopted for this modification, and also for additional security. As I have no doubt that the bolt H was desirable to prevent the breech frame from dropping down (except at the time of discharge), it would be more necessary to have the bolt H there with the modified construction, than in the construction shown in the drawings; for the reason that if the same amount of projection was preserved in the modified form as in the drawings of the patent, and if the centre from which the curve is struck is a point in the axis of the barrel as directed by the patent, the curve would be a flatter one extending from the point T to the top of the breech frame, and as this curve is flatter the angle from the axis to the point T being less in the modified construction than the angle shown in the drawings from the line of the axis of the barrel downward would present less obstruction or hindrance to the tendency of the weight of the breech and lever to slide the movable breech pin forward and open the breech. I have said at times other than at the time of discharge, for in the modified form as well as in the form shown in the drawings, the breech and lever would be held in place by the force of the explosion against the front of the breech pin which would press the curved rear of the breech pin into the curved seat of the breech and hold it there until after the explosion.

145 The breech pin is not carried back against the breech seat in the Burnside patent (but is only pressed against the seat firmly) by the explosion. When the breech is closed the curved end of the breech pin, according to the patent, is carried away back to its extreme backward position by the action of the pin *a* in the

frame against the back of the groove in the side of the breech frame marked *b* in figures 1 and 4, consequently defects in cartridges and the sticking of the breech pin cannot prevent the arm described in the Burnside patent from operating in this respect, as described in the patent, if the breech is carried into its firing position, whatever may be the condition of the cartridge and breech pin.

Q. 8. State in what respect, if any, the last wooden model of the Burnside gun produced by the defendants is incorrect.

A. I have examined said "Exhibit Burnside Model," and I find that it is not made according to the directions of the patent. 1st. The rear support in the frame is so made in the model that it would not prevent the movable breech, when in the firing position, from dropping down, whereas in the patent it is represented as so shaped as to hold the movable breech from dropping down. I quote the words of the patent in reference to this point, as follows:

"In order that the breech piece or chamber may not be thrown out of its position by the force of the discharge the rear of the movable cone seat or breech pin is curved from the center within the axis of the barrel, and is made to bear upon a seat, a small portion of which is correspondingly curved a short distance above and below the prolongation of the axis of the barrel. The discharge is thus caused to retain the breech piece or chamber in its firing position, as it cannot be withdrawn therefrom until the movable cone seat or breech pin be advanced into the position seen in Fig. 2."

146 This curvature of the seat in the rear of the breech piece, corresponding with the end of the breech pin referred to, is shown in the patent in Fig. 1 of the drawings by dotted lines. It is not reproduced in the "Exhibit Burnside Model." On the contrary the front of the breech frame is cut away, so that no such curve, as is shown in Fig. 1, is left in the breech frame to correspond with the curve of the rear end of the breech pin below the line of the axis of the barrel. The effect of this cutting away of the breech seat below the line of the axis of the barrel is that the breech piece may drop down without anything to prevent it in the form of the face of the breech seat, and to permit the force of the discharge to throw the breech pin downward, instead of tending to hold it in the line of the axis of the barrel, according to the description of the patent. An arm constructed after the manner of this Burnside model, in the respect just referred to, would not operate according to the description given in the Burnside patent, but in a manner just the reverse of that stated in the patent. I am aware that drawing Fig. 2, which is a longitudinal section of the arm vertically, does not represent the face of the breech seat as curved forward below the line of the axis of the barrel, but as this is only a section, and probably a section through the axis of the barrel, it is not inconsistent with the description and the drawing Fig. 1, provided that a portion of the breech seat at the center was shaped as shown in the section, and the remaining portion on each side of the center was constructed as is shown in Fig. 1 and fully described in the specification. Another difference which I notice between this Burnside model and the Burnside patent is the amount of

longitudinal movement which is given to the sliding breech pin. The patent, after describing the construction of the face of the breech or seat of the breech pin below the line of the axis of the barrel, says that the movable breech piece "cannot be withdrawn therefrom until the movable cone seat or breech
147 pin be advanced into the position seen in figure 2." Now, by comparing the positions of the breech pin shown in figures 1 and 2 of the drawings, we may determine how much longitudinal movement is given to the breech pin, and how much the curvature of the frame seat projects under the extreme end of the breech pin when the latter is in its firing position. The patent says that the breech piece cannot be withdrawn from the seat until the breech pin be carried to the position shown in figure 2, and as the breech pin is shown in figure 1 as resting against its seat in the frame, the extent of motion and the extent of the curved surface below the line of the axis of the barrel may be determined, and this amount, as near as I can measure from the drawings, would be in a full-sized gun about $\frac{1}{10}$ of an inch. Now, in the Burnside model it is not so much as this, being only about the $\frac{1}{32}$ of an inch, and the Burnside model is evidently as large as a full-sized gun. As the patent states that this forward movement of the breech pin is for the purpose of discharging the cartridge shell forward, this difference in the extent of motion of the breech pin longitudinally between the model and the drawings of the patent is material, since a $\frac{1}{32}$ of an inch would be insufficient, in my opinion, to discharge the shell, whereas a $\frac{1}{10}$ of an inch might be enough. Another difference between this Burnside model and the Burnside patent is, that the hammer of the arm is entirely omitted in the model, and the thumb piece I, for moving the bolt H, is not placed upon the bolt H in the position shown in the patent, but is so arranged that it can be placed vertically when the breech piece is fastened by the bolt, and may be turned backward and downward to unlock the breech piece, whereas in the patent said lever I is so positioned in reference to the bolt H and the hammer that it must be pushed downward and forward to free the breech, and backward and upward to fasten the breech.

148 Q. 9. Is the Burnside gun one in which there is a breech block having a longitudinal backward and also a downward movement, as specified in the disclaimer preceding the Cochran claim?

A. I think it is.

Q. 10. In the Burnside gun, if the curved surface behind the breech block is curved forward below the axis of the line of fire, so that the breech block proper will have to advance to eject the cartridge in order to open, is it possible for the cartridge chamber or breech to open at the moment of discharge?

A. I think not.

Q. 11. If the pin *a* in the side of the stock of the Burnside gun operates to throw the breech block forward in opening and eject the cartridge, is it possible for the breech to open at the moment of ex-

plosion while the breech block is against the seat, and held so by the explosion?

A. Not without breaking some part of the gun; if the breech pin is moved back against the cone seat by means of a pin fixed in the side of the breech frame while the breech is being closed, and the pin *a*, at the time of closing, fits the groove in the breech pin, the breech cannot swing down without moving the breech pin forward, and if the breech pin is prevented from coming forward by the force of the explosion, it follows that the breech cannot then swing down without breaking the pin *a*. The description of the patent lays great stress upon the discharge of the cartridge from the chamber by means of the breech pin as it is moved forward by the pin and the projection of the lower part of the curve below the line of the axis of the barrel.

Q. 12. In either modification of the Burnside arm said by defendants' experts to be suggested in the specification is the bolt H anything more than an "additional security"?

A. It is not.

149 Q. 13. Are you familiar with the Burnside arm as manufactured for the market; if so, how long have you been familiar with them, and what opportunities have you had for knowing of their construction?

A. I have been familiar with them since the year 1862; I think I was in the Burnside manufactory, during that year, where they were being made.

Q. 14. Did you ever know of any Burnside arm being made with a bolt like that marked H described in the patent?

A. I never did.

Q. 15. What sort of a latch or fastening device was used in reality in the Burnside arm as manufactured?

A. It was a hook projecting downward from the breech frame, into which a catch pivoted in the guard lever engaged as the breech was closed, as shown in the Burnside now produced, and marked Burnside rifle.

(The arm referred to is here put in evidence, and marked Burnside Rifle, W. C. W., Examiner.)

Q. 16. Does the Burnside gun, patented March 25, 1856, belong to the class in which the resistance to the recoil of the discharge is a solid, stationary, rear support in the line of fire, or to the class in which the recoil is resisted by a movable brace?

A. To the former class.

WILLIAM C. HICKS.

150 U. S. Circuit Court, District of Connecticut. In Equity.

U. S. RIFLE & CARTRIDGE Co. *et al. vs.* WHITNEY ARMS Co. *et al.*

It is admitted that the Whitney rifle marked "Complainants' Exhibit Whitney Rifle No. 2" is one of the arms manufactured and sold by defendants before the commencement of this suit and after the 7th day of May, 1872, and is one of the arms referred to in the

deposition of Mr. Whitney of April 26 and 27, 1876, in his answer to Q. 15, in the case of Alger *et al. vs.* Whitney Arms Co. *et al.*

May 8th, 1876.

GEORGE GIFFORD,
Counsel for Compl'ts.
BENJ. F. THURSTON,
Def'ts' Counsel.

151 NEW YORK, *June* 5, 1876.

Present: Counsel for complainants, and Mr. Whitney in person.

EDWARD S. RENWICK, being recalled in behalf of complainants, deposes and says:

1 Q. Have you been heretofore examined as a witness in this case?

A. I have.

2 Q. Mr. H. B. Renwick, in answer to the third question of his deposition taken at Providence, May 25, 1876, says:

"As I understand the Burnside patent, it describes two modifications of the breech block, so far as the curve of its end is concerned, one being like that represented in the drawings of the patent, and the other having the curve at the end of the breech struck from the center lower down than the axis of the barrel."

Do you understand the Burnside patent in that way; if not, why not?

A. I do not; I have searched the patent with great care, for the purpose of ascertaining whether it contains any language which, directly or indirectly, amounts to a statement that the curve of the end of the breech pin is in any modification of the fire arm to be struck from a center lower down than the axis of the barrel, but have not been able to find any such language; on the contrary, the language of the patent is to the directly opposite effect, and the drawings, which, according to the description of the patent, show only one form of the fire-arm, contain nothing that is inconsistent with the statements in the patent, that the center from which the curve of the breech block and breech seats is struck is "within the axis of the barrel;" thus, in the commencement of the patent, it is stated that "Fig. 1 is a side view of a rifle with my improvement attached; Fig. 2 is a longitudinal section of the same;" * * *

152 hence it is clear that the said two drawings both show one and the same fire-arm, and not two modifications differing from each other. Again, when the patentee proceeds to describe the fire-arm represented in the drawing, he uses the following language as to the curvature of the breech pin and the curvature of the seat against which it is made to bear, viz:

"In order that the breech piece or chamber may not be thrown out of its position by the force of the discharge, the rear of the movable cone seat or breech pin is curved from a center within the axis of the barrel, and is made to bear upon a seat, a small portion of which is correspondingiy curved a short distance above and below the prolongation of the axis of the barrel." * * *

This language appears to me to describe unmistakably the position of center of curvature of both the breech pin and the seat upon which it is made to bear as being within the axis of the barrel and not below it. Subsequently the patentee describes a modification, and when describing it he does not give a new drawing, but refers simply to the drawing of the fire-arm he has already described for the purpose of showing how low down he may carry the curvature of the breech pin and its seat, the language being as follows:

"But as we may want to place the projecting portion of the curved surface lower down, as at T, for instance." * * *

Now, in reference to this language it will be observed there is no intimation given by it that the center of curvature is to be shifted downward from the previously described position within the axis of the barrel, so that the statement, as I understand it, amounts simply to saying that in place of making the seat with a small portion of it curved correspondingly, with the breech pin curved a short distance above and below the prolongation of the axis of the barrel, the curvature may be made longer below the axis of the barrel—in fact, as far downward (not backward) as at T, keeping the center of
153 curvature, as above described, "within the axis of the barrel."

Again, the language in reference to the modification speaks of the portion of the curved surface which is to be brought downward "as the projecting portion," which language, as I understand it, can refer only to a portion which projects forward so as to underlap the curved butt of the breech pin, thus confirming the view above stated that the center from which the curved portion is struck is within the axis of the barrel; for if that center was moved downward so that the curvature of the whole breadth of the breech seat sloped backward, it is perfectly clear that no portion of it below the axis of the barrel would be a projecting portion. On the contrary, the whole of the curvature below the axis of the barrel would, in such case, be receding, or, in other words, would recede or diverge from the butt of the breech pin.

If, however, the projecting portion of the curvature of the seat should be brought down, as described in the patent, as low (not as far backward) as the point T in the drawing, it is clear that the said projecting portion of the seat would extend so far forward that the space given in the arm for the forward movement of the breech pin is not sufficient to permit its butt to clear such an extended projecting portion. Hence it would become necessary to make the lower part of this projecting portion movable, so that it could be got out of the way, when the breech pin, after being moved forward as far as possible, was to be drawn downward, and such a movable capacity could be given to such lower part of the projecting portion by making it upon a bolt similar to that described in the patent.

Therefore there is nothing in the language describing the modification which conveys any other idea respecting the position "of the center of curvature than that it is to be within the axis of the barrel."

154 The fact that Fig. 2 of the drawing shows the face of the lock frame in the rear of the breech pin as sloping backward

below the axis of the barrel is accounted for by the fact that that drawing represents a section at the center of the arm, and in the vicinity of this center the face of the breech frame may have been slotted or grooved, while at the sides the seat is curved exactly as described in the patent "for a short distance above and below the prolongation of the axis of the barrel," and as represented in the dotted lines in Fig. 1 of the drawings, so that the drawings are not inconsistent with the description.

Q. 3. In the same answer of the said H. B. Renwick there is the following statement:

"An examination of the gun will show that the sliding portion of the breech block is retreating from the cartridge at the time the breech block is closing the end of the barrel, so that even when the gun is clean and the cartridge perfect there is, to say the least, great uncertainty that the butt of the cartridge will touch the sliding piece when the gun is loaded."

State whether the foregoing statement agrees with the statements of the patent, and give your reasons for any opinion you may express.

A. As I understand the language of the patent, the statement quoted in the question does not agree with it for the following reasons:

An inspection of the drawings of the patent shows that when the gun is loaded there are two joints at which gas could escape, viz., the joint at the front end of the movable breech or chamber, between it and the barrel, and the joint between the rear end of the said chamber and the sliding breech pin. The patentee describes that the object of the invention is to close these joints and prevent leakage or the escape of gas thereat, and for this purpose he uses a cartridge case composed either wholly of "soft metal" or composed of soft metal at those parts which correspond with said joints,
155 and in his description of the operation of the fire-arm he uses the following language:

"The parts being in the position represented in Fig. 2, the metallic cartridge is dropped into the breech piece or chamber, which is returned to its firing position by the operating lever E, and bolted by bringing up the handle I. The joints between the barrel and the breech piece or chamber, and between the latter and the movable cone seat or breech pin, are thus covered by the soft-metal cartridge case." * * *

It thus appears, by the language of the patent, that the act of moving the chamber and breech pin to their firing position causes the soft-metal cartridge case to cover the joint between the chamber and the breech pin. In order that it may do this, the cartridge case must move back in the breech as the breech pin goes backward, and therefore the breech pin or block does not retreat from the cartridge at the time when the breech is closing, but the breech pin and the cartridge move backward together, and the butt of the cartridge touches the breech pin when the latter is in the firing position. The cause of the backward movement of the cartridge case with the breech pin is the fact that while the chamber is being raised to its

firing position the front end of the cartridge comes in contact with the shoulder of the barrel, so that as the chamber rises it moves forward on the cartridge case, which is prevented from moving forward by contact with the shoulder at the rear end of the barrel.

If the breech pin or breech block (as it is called in the quotation given in the question) retreated from the butt of the cartridge case, the covering of the joint (as described in the above quotation given by me from the Burnside patent), by the return of the breech chamber to its firing position, would not take place, and therefore I think that the statement quoted in the question is inconsistent with the statements of the patent.

156 Q. 4. Of what kind of material does the Burnside patent describe the cartridge cases as being made of?

A. Either "entirely of soft metal" or "of soft metal at the points opposite to the open joints."

Q. 5. If, as assumed by Mr. H. B. Renwick, the butt end of the soft metal cartridge case, or the soft metal of the cartridge case opposite the joint at the breech pin, should not touch the front end of the breech pin, what would be the first effect produced by the firing of the cartridge?

A. In the case assumed the movement of the bullet at the front end of the cartridge would be resisted by contact with the shoulder at the rear end of the barrel; the sides of the cartridge case would be sustained by the internal surface of the conical wall of the breech against which they rested; but as the butt of the cartridge case, under the assumption, would not touch the breech pin, this butt would be unsupported against the pressure of the gases within the cartridge case produced by firing, and inasmuch as this butt of the cartridge case, according to the patent, is to be of "soft metal," it being the weakest part of the enclosure surrounding the powder, would be the first thing to yield to the internal pressure produced by firing the charge. Hence it would be driven back until it touched the front end of the breech pin, so that the first portion of the shock of the discharge would have to be sustained by the breech pin and by the seat which holds it in position during firing.

Q. 6. What can you say as to the difference in the mode of operation of the breech piece, as it is described in the Cochran patent, and the mode of operation of the sliding piece called a breech pin in the Burnside patent?

A. One of the offices of the breech piece of the Cochran patent is to close the rear end of the chamber in which the cartridge is held during firing, and the only part of the Burnside patent fire-
157 arm which had this office is the sliding breech pin or cone piece designated by the letter F. Now the Cochran breech piece is described in the Cochran patent as being hinged or pivoted at its front lower portion, whereas the breech pin of the Burnside patent is not hinged or pivoted at any part or portion of it, but every part of it is constructed to slide relatively to the position of the fire-arm with which it is immediately connected; again, the Burnside breech pin is constructed with a long cylindrical projection which is arranged to slide snugly in the cylindrical rear end of the cartridge

chamber or breech; such a construction and arrangement would be impracticable with the breech piece of the Cochran patent, because the rigid connection of every part of the Cochran breech piece with the pivot at its front lower portion compels every part of the breech piece to move in a circular curve, and if the breech piece had a cylindrical projection engaged in the end of the chamber as that of the Burnside breech pin is the walls of the said chamber would prevent circular movement and the fire-arm would be impracticable. One of the offices of the Cochran breech piece is to uncover the rear end of the cartridge chamber so as to open the same, so that the cartridge may be introduced, ball foremost, into the cartridge chamber. No such office is performed by the Burnside breech pin, which, having its front end always engaged in the rear end of the chamber, and being constructed to slide only a short distance to and fro longitudinally of the chamber, never uncovers or opens the rear end of the chamber. Hence the two fire-arms have an entirely distinct, different mode of operation. In the Cochran gun the cartridge chamber is a fixture and the cartridge is loaded ball foremost into the chamber, whereas inasmuch as the rear end of the cartridge chamber of the Burnside gun cannot be opened for loading the chamber must of necessity be a movable piece, and the cartridge is loaded butt backward into the front end of the movable chamber.

158 Q. 7. Assuming that Mr. H. B. Renwick is correct in what he says in answer to the 4th question of his deposition taken May 25th, 1876, in reference to the second claim of this Cochran patent excluding a sliding movement of the breech piece, and the first claim of the *the* Cochran patent including the sliding movement of the breech piece, is that sufficient to bring the Burnside arm within the first claim of the Cochran patent?

A. In my opinion, it is not sufficient.

Q. 8. State the advantages in a fire-arm of having the breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point.

A. Such a breech block enables the cartridge chamber to be a fixed part of the fire-arm. It also combines in one implement the advantages incident to two other systems of breech-closing piece without the disadvantages of either; thus it enables the end of the cartridge chamber to be opened and closed by a short movement of the breech block, because inasmuch as it drops as it opens its opening movement need have no reference to the length of the cartridge, thus obviating the defects of the longitudinally-sliding breech pin when used in connection with a fixed cartridge chamber, for such breech pins must be moved a distance at least as great as the length of the cartridge in order that they may be drawn back far enough to permit the cartridge to be entered in advance of them; again, inasmuch as the last portion of the closing movement of the swinging breech block is in a direction forwards toward the muzzle of the fire-arm, the swinging breech block may be used to push the cartridge home in the cartridge chamber, thus obviating the defects of the transversely-sliding breech pieces which have no forward movement.

Again, inasmuch as the first movement of the swinging breech block is in a direction backward from the muzzle it may be readily used in connection with an extractor for drawing a cartridge or cartridge case, butt foremost, from the cartridge chamber.

159 The experience of inventors and manufacturers of fire-arms has also demonstrated the fact that the breech block swinging upon a pivot to and from the rear end of the cartridge chamber is adapted to being combined with a thumb piece projecting upward above the breech block so that the breech block may be opened by a mode of operation similar to that employed for raising the hammer of the fire-arm, thus greatly simplifying the manipulation of the fire-arm and enabling the breech to be opened without shifting the hand from the position required for cocking the hammer. Experience also has shown that a breech block swinging upon a pivot relatively to the rear end of the cartridge chamber can be locked in position and unlocked therefrom either by the hammer itself or by an implement moving upon the pivot of the hammer, and without the necessity of using any lever projecting below the lock frame or the stop of the fire-arm, so that the mechanism of the fire-arm is rendered more compact and less liable to injury.

(Objected to, as immaterial, since Cochran did not invent the solid breech block pivoted below the barrel and swinging in the arc of a circle; neither did he invent a brace to lock the same when closed.

E. S. RENWICK.

Subscribed and sworn to before me, this 5th day of June, 1876.
W. C. WITTER, *Examiner.*

160 *Defendants' Evidence.*

Be it remembered that on this 28th day of May in the year of our Lord one thousand eight hundred and seventy-five, I, Johnson T. Platt, an examiner, duly appointed by the circuit court of the United States for the district of Connecticut, in the second circuit, did call and cause to be and personally appear before

161 me John E. Earle, Esq., to testify and the truth to say, on the part and behalf of the defendants, in a certain suit or matter of controversy now depending and undetermined in the circuit court of the United States for the district of Connecticut, wherein the United States Rifle and Cartridge Company and E. Remington & Sons are complainants and the Whitney Arms Company, Eli Whitney, president, and Eli Whitney are defendants.

JOHN E. EARLE, a witness of lawful age, produced by and on behalf of the defendants, after being duly cautioned and sworn to tell the truth, the whole truth, and nothing but the truth, in the matter of the controversy herein, and being examined by Mr. THURSTON, he says:

1st Ques. What is your name, age, residence, and occupation?

Ans. John E. Earle; am forty-four years of age; reside in New Haven, Conn.; am solicitor of patents, and have been engaged in

that profession for more than twenty years, and prior to 1861 in connection with mechanical drawing; since that time, exclusively, as solicitor of patents, and for the past seven years as an expert in patent causes.

2d Ques. To what extent and during what period, if at all, has your attention been particularly directed to the construction and operation of fire-arms?

Ans. Since 1861 I have made fire-arms a specialty in my profession; have prepared a great many applications for patents, and have frequently been called upon to examine fire-arms, to consider the question of infringement of such arms upon existing patents, and to compare patents with prior patents relative to the question of the infringement of one upon the other, and have been several
162 times called upon to testify in causes in the United States court, based upon patents for fire-arms, and have thus become familiar with the subject of fire-arms.

3d Ques. Have you read and do you understand the contents of letters patent of the United States granted to John W. Cochran, dated May 7th, 1872, No. 126,446, for improvement in breech-loading fire-arms, being the letters patent for the alleged infringement of which this controversy is pending?

Ans. I have examined that patent and believe I fully understand the invention as therein described and recited in the claims.

4th Ques. Please state what is the machinery or combination of devices recited as the invention in the first specification of claim of the Cochran patent?

Ans. I understand the invention recited in the first claim to be for a combination of the following elements:

First, a breech piece hung below the barrel, and so that in opening the breech of the barrel the breech piece will turn upon its pivot backward and downward; and, second, a cam pivoted to the frame in rear of the breech piece, and so that when the breech piece is in its closed position the cam will have been turned beneath and so as to support the breech piece; the arrangement of these two elements being such that, to release the breech piece, the cam turns upward and backward.

5th Ques. Please look at the model now shown you, marked "Exhibit Cochran Model," and state whether the same correctly represents the mode of operation of the arm described in the said Cochran patent.

Ans. I have examined that model, and I believe it fully and clearly represents the invention as illustrated and described in the said Cochran patent, with this difference only, that, in order
163 to open the breech block by the movement of the lever, the locking brace must continue to turn backward while the breech block is opening; but, as constructed in Fig. 3, the locking brace comes to a bearing in the frame so soon as the brace is turned back out of the path of the breech block, hence the lever could not be turned and the breech block would by the link be held in its closed position. In the model, in order to allow the lever to turn sufficiently to open the breech block, it was necessary to cut a re-

cess in the frame, and this recess is found in the model. In that respect, and that only, the model differs from the drawing, but correspond with the description.

6th Ques. Please look at the letters patent granted to A. D. Perry November 28th, 1854, No. 12001, and state what combination of devices is therein shown of a breech block and brace.

Ans. In the Perry patent I find a breech block hinged in the frame, and so as to swing to and from the barrel, to close and open the breech, substantially like the breech piece in the Cochran patent. Combined with this breech piece, and hinged to it, is a cam *g*, and operating so that when the breech piece is closed the cam will be seated on a shoulder in the frame and securely support the breech piece in its closed position.

7th Ques. State whether you find in the said Perry patent a gun described which has a breech block pivoted so as to swing backward and downward, in the arc of a circle, around a fixed point.

Ans. I do find such a breech piece, and to operate in that manner.

8th Ques. State whether you do or do not find in said
164 Perry patent a gun described which has a brace to hold fast the breech when closed, which brace is other than the nose of the hammer.

(Objected to, as immaterial.)

Ans. I do find the brace, or cam, as I have previously called it, which supports the breech piece against recoil and which is entirely independent of the nose of the hammer.

9th Ques. In the gun described in the said Perry patent, in which direction is the brace arranged to swing in unlocking the breech?

Ans. Downward and forward.

10th Ques. In the gun described in the said Cochran patent, how is the brace arranged to swing in unlocking the breech?

Ans. Upward and backward.

11th Ques. In which direction do the breech block levers move in the structures described in both the Cochran and the Perry patent to open the breech?

(Objected to, as immaterial.)

Ans. In both the lever swings downward and forward in opening the breech.

12th Ques. Having stated that in both cases the breech block lever moves downward and forward, and having also stated that in the Perry gun the brace moves downward and forward and that the brace in the Cochran moves upward and backward, explain fully what is the difference in the mechanical arrangement in the two cases which induces in the one instance an upward movement of the brace and in the other instance a downward movement, when both braces are combined with a downwardly-moving breech block lever.

165 Ans. In the Cochran patent the locking cam is a part of, and in the same piece with, the lever, the lever extending below and back beneath the stock; hence the cam which is above

the pivot must move in the opposite direction to the movement of the lever below; that is to say, as the lever below is turned downward and forward in opening the breech the cam must turn backward and upward. In the Perry patent the forward or upward end of the locking cam is pivoted to the breech piece, and between the pivot and the bearing end of the cam a connecting rod is attached to connect the cam with the lever, which is hinged in the frame forward of the cam; hence the downward and forward movement of the lever draws the bearing end of the cam downward and forward from its seat in opening the breech piece. In both the Perry and the Cochran patent the cam must be turned from its seat before the lever can act to open the breech block.

13th Ques. Please look at the model now shown you, marked Exhibit "Perry Model," and state whether the same correctly represents the structure described in the said Perry patent.

Ans. It does correctly represent the construction shown and described in that patent.

14th Ques. Look at certified copy of the letters patent granted to A. E. Burnside, dated March 25th, 1856, No. 14491, and state what organization is therein shown for opening and closing the breech and for bracing the breech block when the breech is closed.

Ans. In the Burnside patent I find a breech block hung below and in the plane of the rear end of the barrel so as to swing back-
166 ward and downward in the arc of a circle in opening the breech; the breech piece is moved by a lever beneath the arm.

In the rear of the breech piece is a cam H, arranged to turn upon its own axis; this cam is of cylindrical form and arranged so that a portion of its periphery will come into the space or recess for the breech block; one side of the cylinder is cut away, so that when that side is presented to the recess it will be substantially flush with the rear end of that recess, but when partially rotated then a portion of the cam will project into the recess. On the rear end of the breech piece a recess *g* is formed corresponding to the cylindrical surface of the cam, and so that when the breech piece is closed and the cam turned to bring a corresponding part of its surface into that recess, the breech piece will be securely locked in its closed position and cannot be opened until the cam be turned to bring the cut-away portion toward the said recess; then the breech block is free to be opened; this cam is thus actuated by a lever I, which, to turn the cam to open the breech, is moved downward and forward as indicated in broken lines, Fig. 1, and this movement of the lever turns the supporting surface of the cam upward and backward.

15th Ques. Do you find in the structure described in the said Burnside patent a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point in combination with a brace other than the nose of the hammer, pivoted to the frame in rear of said block, said brace being arranged to swing upward in unlocking the breech?

Ans. I do find such a combination in the Burnside patent.

16th Ques. Please look at the model now shown you marked

"Burnside model" and state whether the same correctly represents the structure described in the said Burnside patent.

167 Ans. It does represent the construction described and illustrated in the said Burnside patent.

17th Ques. Please look at the copy of the letters patent granted to Thomas Lee, dated April 27th, 1858, No. 20073, and state what is the organization therein shown for opening and closing the breech and locking the breech block when the breech is closed.

Ans. In this patent I find a breech block pivoted in the frame and so as to swing backward and downward in the arc of a circle; combined with this I find a cam pivoted to the frame in the rear of the breech block and arranged to swing downward and backward in opening the breech, and which, when the breech block is in its closed position, will securely hold the breech block in that position.

18th Ques. Please look at the model now shown you, marked Exhibit Model Lee, and state whether the same correctly represents the structure described in said Lee patent, so far as relates to the pivoted breech block and brace combined therewith.

Ans. This model does represent that construction as shown in the drawings and specifications of said Lee patent.

19th Ques. Please look at the defendants' gun, Exhibit "Whitney Rifle," and state by what combination of devices the brace which locks the breech block when the breech is closed is operated.

Ans. The brace is turned back by means of a lever hung beside the breech piece, and on the same pivot as the breech piece. After the brace has been turned from beneath the breech piece,

168 then the same lever engages the breech piece and turns it back to open the breech, the brace remaining stationary after it has been turned from its locking position.

20th Ques. In the gun described in the Cochran patent, is or is not the brace an extension of the operating lever?

Ans. It is a part of the same.

21st Ques. Taking into view the preceding state of the art, as exhibited in the said Burnside, Perry, and Lee patents, do you find the combination of devices recited in the first claim of the Cochran patent and described in the specifications of said patent to which said claim refers, contained in the said "Whitney rifle"?

Ans. In view of the state of the art, as exhibited in these prior patents, I do not think the combination recited in the first clause of claim of the Cochran patent, and "substantially as described," is found in the Whitney rifle.

22d Ques. In the said Cochran patent, what is the link of connection between the lever C and the breech block B?

Ans. It is a connecting link *l* pivoted to both the lever and the breech block, but a slot must be provided at one point of connection to give "sufficient lost motion in the link to permit the front end of the lever C" (that is, the locking brace) "to pass from behind the block B, and thus unlock the latter before the link *l* operates on the breech block to throw it open."

23d Ques. In the said Cochran patent, in which direction does the lever C move to remove the brace from the breech block?

Ans. Referring to drawing in Fig. 1, that part of the lever below the pivot is marked C; in Figs. 2 and 3, the upper part, or locking brace, is marked C; therefore, that part marked C in Fig. 1
169 moves downward and forward, and that part marked C in Figs. 2 and 3 moves upward and backward in opening the breech.

24th Ques. In what direction does the lever in the defendants' gun, Exhibit "Whitney Rifle," for operating the brace move?

Ans. Backward and downward, in the same direction as the brace which it moves.

25th Ques. Please examine the list of letters patent annexed to the question granted to John W. Cochran for improvements in the various subjects mentioned in the said list, and state whether you have compared the same with the official reports of the Patent Office, and whether the same is a correct list of the letters patent of the said inventions granted to the said Cochran between February, 1859, and May, 1868.

Projectiles for ordnance, Nov. 1st, 1859, No. 25951.
Projectiles for rifled ordnance, Nov. 8th, 1859, No. 26016.
Projectiles for rifled ordnance, Nov. 8th, 1859, No. 26017.
Breech-loading and other fire-arms, Nov. 29th, 1859, No. 26256.
Projectiles for rifled ordnance, Dec. 6, 1859, No. 26337.
Cartridge for fire-arms, March 13th, 1860, No. 27428.
Improvement in projectiles, Sept. 25th, 1860, No. 30123.
Percussion fuse for explosive shells, Jan. 6th, 1863, No. 37275.
Percussion fuse for explosive shells, Feb. 17th, 1863, No. 37675.
Breech-loading fire-arms, July 7th, 1863, No. 39120.
Revolving fire-arms, Nov. 10th, 1863, No. 40553.
Breech-loading fire-arms, Dec. 22d, 1863, No. 40992.
170 Breech-loading fire-arms, April 4th, 1865, No. 47088.
Cartridge for breech-loading fire-arms, Feb. 20th, 1866, No. 52679.
Revolving fire-arms, March 27th, 1866, No. 2211. Reissue of Nov. 10th, 1863.
Chair, sofa, and car seat, May 22d, 1866, No. 54863.
Packing projectiles for rifled ordnance, July 31st, 1866, No. 56712.
Breech-loading fire-arms, March 26th, 1867, No. 63217.
Fixed ammunition holder for cartridge boxes, March 17th, 1868, No. 75625.
Fixed ammunition holder for cartridge boxes, March 17th, 1868, No. 75626.
Breech-loading fire-arms, March 17th, 1868, No. 75627.
Breech-loading fire-arms, April 25th, 1865, No. 47396.

Ans. I have examined them, and the foregoing list is correct. It does not appear by the reports that either of the above patents was assigned, the issue being to Cochran individually.

Adjourned to Saturday, May 29th, 1875, at 9.30 o'clock a. m.

Cross-examination.

Cross-interrogatories propounded by FREDERICK H. BETTS, Esq., counsel for The United States Rifle and Cartridge Company:

X 1st Ques. You have mentioned a number of patents which you say you find to have been granted to John W. Cochran between February, 1859, and May, 1868. Do you know whether
171 said Cochran obtained those patents, or any of them, at his own expense?

Ans. I do not.

X 2d Ques. Do you not know that it appears by the records, in a large number of cases, at least, that others were associated with him as assignees or part owners in obtaining the same?

Ans. The above records show the exact number as reported.

X 3d Ques. In the patent of A. D. Perry, November 28th, 1854, you state that you find a cam *g* operating so that when the breech piece is closed the cam will be seated in a shoulder in the frame and securely support the breech piece in its closed position. When said cam is so seated does it, in your opinion, resist any portion of the explosive force which tends to throw back the breech block from the barrel?

Ans. I do, because the bearing of the cam is outside the arc of a circle drawn through the pivot which hinges the cam to the breech piece; hence the cam and breech piece form, as it were, a toggle between the cam seat and the pivot of the breech piece, and the force of recoil against the breech piece would only tend to throw down the cam at its point of connection with the breech piece in like manner as the power applied to the joint of a toggle.

X 4th Ques. You have stated that the model (Perry model) correctly represents the construction shown and described in the Perry patent; is it not a fact that in the model that the cam *g*, representing the cam *g* in the drawing, when seated, is more directly opposed to the line of recoil of the breech piece than is represented in the drawing of the patent, and from such altered position better adapted to resist recoil?

172 Ans. In the drawing there is considerable difference in the form of the cam seat in the two figures; the model more correctly represents the seat as shown in Fig. 1, which gives to the cam a more extended bearing surface than that in Fig. 2; but I do not think that that increased amount of bearing surface would add materially to the strength of the cam; it is the upper edge of the cam that takes its bearing upon the seat as shown in Fig. 2; but this would not lessen the power of the cam to any material extent to resist recoil.

X 5th Ques. You have not yet answered the question as to whether or not the model you have produced does not differ in the particular indicated from the drawings.

Ans. The construction of the Perry model I believe to be identical with the description in the Perry patent and as shown in Fig. 1, and differing only from Fig. 2 as I have mentioned.

X 6th Ques. Fig. 2 is the figure which is intended to represent the cam when it is seated and in position to lock the breech piece, is it not?

Ans. I so understand it; but I also understand the construction of Fig. 1 to show the seat intended to be shown in Fig. 2, and that is the figure first referred to as illustrating the invention.

X 7th Ques. Which do you understand to be the controlling figure, with reference to the position of the cam *g* and its seat to each other when the breech is locked, the figure which shows them in position as locked, or the one that does not show them in such position?

Ans. I do not understand that one figure is more controlling for either position described than the other. The first is all sufficient to illustrate the construction of the invention. Fig. 2 may
173 therefore be considered as introduced for convenience of illustration. Fig. 1 does show the breech piece in its open position, and Fig. 2 in its closed position.

X 8th Ques. Do I understand you to mean in making a model that you intend "correctly to represent" the relation of the cam *g* to its seat when the breech is closed, that you have considered yourself at liberty more closely to follow the drawing which does not represent those parts in the position desired to be illustrated than the one which does?

Ans. I do not, and have not. In preparing the model Fig. 1 only was used, as that shows more clearly the details than Fig. 2, and I did not discover the slight discrepancy between the two figures until my attention has now been called to it. In examining the Perry patent I only referred to the printed drawing. The discrepancy between the two figures is far more apparent in the tracings attached to the certified copy in evidence than in the printed drawings. Fig. 1 of the certified copy is, however, identical with Exhibit Perry Model.

X 9th Ques. Let me point out still another difference between the Perry model and the drawings of the Perry patent. In the drawings the head of the cam *g* which locks the breech piece is represented as situated in a free space, and not turning in contact with the breech piece which surrounds it. In the model the head is represented as substantially in contact, is it not?

Ans. In the drawings the head of the cam in Fig. 1 is very much nearer in contact with the cam than it is in Fig. 2, and in the model it may be somewhat nearer in contact than it is in Fig. 1 when
174 closed, but when open there is very little difference, as the cam is not perfectly fitted and could not well be in so rude a construction.

X 10th Ques. You say "in the model it may be somewhat nearer in contact than it is in Fig. 1 when closed;" is it not the fact that in the model it is in contact and in the drawings it is represented out of contact in both figures?

Ans. The drawings are very crudely made, and the head of the cam is of different shape in both figures, as is also the seat for the cam. In Fig. 1 the head of the cam at one point comes very near the seat of the cam in the breech piece, but at no point does it

touch the seat. In the model the cam may be pressed into close contact, but does not, when the breech is open, actually touch the breech at any point, though it is nearer at all points than it is in the drawings, and when it is closed there is so little play it practically comes in contact with the seat.

X 11th Ques. Now, is not the difference in the result which arises from this departure from the drawings in the model that in the case of a fire-arm constructed according to the drawings, whatever force of recoil is sustained by the cam is sustained on the small pin on which it turns, whereas, in the case of an arm constructed according to the model, the resistance is borne by the whole body of the cam?

Ans. I cannot presume that an arm was constructed, or intended to be, or that the description in the Perry patent implies a construction wherein the pivots would be so small as therein represented. If in the model the pivot of the cam was perfectly rigid, that would take the force of the recoil, and not the cam, the same as in the illustration in the pivot; but if the pivot is so weak as to
175 yield, as it does in the model, and would in the drawings, then the breech piece must come to a bearing on the head of the cam before any firm resistance could be obtained.

X 12th Ques. You say that the pivot is so weak in the drawings that it "would yield;" then if the piece was made in accordance with those drawings, then at every explosion the breech piece would be thrown back so as to leave a leakage between the breech and the breech piece substantially equal to the space between the head of the cam and its seat; is not that so?

Ans. It would, if there was no other provision than the pivot of the cam to resist; but the cam is constructed with a shoulder, independent of its head, against which the breech block bears when the cam is thrown back in its locking position. In the model this shoulder of the cam is shown as in the drawings, but the adjacent or bearing part of the breech piece has been broken away.

X 13th Ques. In the drawings showing the position of the cam as thrown back into its locking position, and the breech locked, is any such function shown; is not the shoulder of the cam out of contact with the surface against which you say it "bears"?

Ans. In Fig. 2 the cam is very crudely drawn, whereas in Fig. 1 it is more perfectly drawn, both figures showing the cam in the same relative position to the breech block; Fig. 2 does not show it in contact, but Fig. 1 does show it closely seated, and which I believe to be a more perfect representation of the construction.

X 14th Ques. Then, as I understand it, in order to show a construction of the Perry arm that would not leak at every
176 explosion, you have to resort to a figure which does not show it in its locked position, ready for firing, and discard the figure that shows it in such a position?

Ans. Not at all; there being two figures, both illustrating the same construction and the same description of construction applying to both, and one being far more perfect than the other, I take the more perfect drawing to be the more perfect illustration; but I

do not consider the slight discrepancies between the two drawings as showing any practical difference, or that would mislead in any degree a mechanic in constructing an arm in accordance with the description referring to the illustrations.

X 15th Ques. You don't know, do you, which drawing is the more perfect illustration of the arm as made?

Ans. I do not, as I never saw a Perry arm.

X 16th Ques. Did you ever know or hear of the Perry arm having been made at all?

Ans. I did not.

X 17th Ques. Did you ever hear of the Burnside or Lee arms being made at all, as described in their patents put in evidence?

Ans. I have seen the Burnside, which, according to the best of my recollection, is substantially like the patent; but I never saw the Lee.

X 18th Ques. How lately have you seen the Burnside arm referred to in your last answer?

Ans. I cannot tell; to examine it carefully, it must have been several years ago.

X 19th Ques. According to your experience in the matter of fire-arms, did you ever know of the Burnside arm as a successful fire-arm introduced in the market?

177 Ans. I have only heard that a large number were made, but of their success I know nothing.

X 20th Ques. Did you not hear that they were not successful?

Ans. I never did.

X 21st Ques. Did you not hear that they did not complete the first and only order they had, and that the company who made them failed?

Ans. If I recollect correctly, they did complete the first order of 10,000, and subsequently failed; but I know nothing concerning the matter.

X 22d Ques. In answer to the 20th direct question you said: "In view of the state of the art as exhibited in these prior patents, I do not think the combination recited in the first clause of claim of the Cochran patent, and 'substantially as described,' is found in the Whitney rifle;" state all of your reasons for so thinking.

Ans. Because in the prior patents of Perry, Burnside, and Lee, I find the combination in a breech-loading gun of a breech block pivoted so as to swing backward and downward, in the arc of a circle, around a fixed point, with a brace other than the nose of the hammer; in the Lee patent, I find this brace "pivoted to the frame in rear of said block, said brace being arranged to swing" downward "in unlocking the breech," instead of "upward," as in the Cochran patent. In the Burnside arm I find "said brace arranged to swing upward in unlocking the breech," substantially as in the Cochran patent. In none of these, however, is the locking brace made an extension of the lever beneath the arm, so that that lever in turning downward and forward turns the brace upward and back-

178 ward; but there is attached to the brace or cam in the Burnside arm a lever which turns downward and forward to turn

the cam upward and backward—the lever, however, being arranged upon the side of the arm instead of beneath, as in the Cochran; and I do not find in the Whitney arm any such or equivalent device for locking the cam, the combination of the locking cam and the breech piece being substantially the same as that in the Burnside patent, and differing only from the Lee in that the cam moves upward and backward in unlocking the breech block.

X 23d Ques. Do you find in either the Perry, Burnside, or Lee patents a combination of breech block and locking cam, substantially the same as the combination of the breech block and brace described and referred to in the first clause of the Cochran patent; and, if so, in which ones?

Ans. Understanding the brace in the Cochran patent to be for a brace to hold the breech block in its closed position, and that it is a part of a cylinder of which the pivot is its axis, the cylindrical periphery taking a bearing on the breech piece when closed and a part of the cylinder cut away, so that when the cylindrical surface which supports the breech piece is turned upward and backward until the cut away portion leaves a clear path for the breech piece to be turned backward and downward, I understand the first claim of the Cochran patent to apply as well to the Burnside construction as to the Cochran, for in the Burnside patent there is "the combination, in a breech-loading gun, of a breech block, pivoted so as to swing backward and downward in the arc of a circle around a fixed point,
with a brace other than the nose of the hammer pivoted to
179 the frame in rear of said block, said brace being arranged to swing upward in unlocking the breech."

X 24th Ques. You do not find this combination described in the first claim of the Cochran patent described in either the Lee or Perry patents, do you?

Ans. Substantially the same, I do, as I do not consider the qualification of "upward" as anything more than mechanical, and not involving invention.

X 25th Ques. Whitney rifle embodies that movement of the brace in an upward direction, and could not employ the movement in a downward direction without an entire reorganization, could it?

Ans. In the Whitney rifle the construction is such as to necessitate the upward and backward motion of the cam, and to change this would necessitate a change of the mechanical parts of the arm; but the broad combination of the breech piece and locking cam would still remain.

X 26th Ques. As an expert in fire-arms, would you advise or consider it advisable to change the Whitney arm so as to make the brace move in a downward direction in unlocking, instead of an upward one?

Ans. I have advised Mr. Whitney to make a locking shoulder which would turn downward, and believe it could be better done than in its present form.

X 27th Ques. Did you give that advice since this suit commenced, or since the defendants have been notified of their infringement of the Cochran patent?

Ans. It was before the suit was commenced, and before he had made his first arm, and while he was discussing and perfecting the improvement, and before I had examined into the state of the art bearing upon this question.

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X 28th Ques. Did you give that advice in view of the Cochran patent, and because of it?

Ans. I did not. It was before I knew of the Cochran patent, and I think before it was issued.

X 29th Ques. You have said that the Burnside patent in your opinion embodied substantially the combination described in the first claim of the Cochran patent, and that the Whitney rifle is substantially like the Burnside; but you have also said that you do not think that the Whitney rifle embodies substantially the combination described in the first claim of the Cochran patent. Will you please to reconcile those statements, if you can?

Ans. I said that the words of the first claim of the Cochran patent, except the words "substantially as described," apply as well to the Burnside as to the Cochran. Considering, therefore, the state of the art as found in the Burnside patent, I understand the "substantially as described" to limit that claim to the actual difference in construction, and that is to the continuation of the brace to form the lever beneath the stock, and by which the brace is turned, and that feature I do not find in either the Burnside or Whitney rifle.

X 30th Ques. Do I understand you to mean that in your opinion the combination described in the first claim of the Cochran patent is found in the Burnside patent, "substantially as described" in the Cochran patent, or that it is not?

Ans. I mean to be understood that the combination of the two elements named in the first claim of the Cochran patent, without the qualification which I have given to the second element, to be substantially found in the Burnside patent; that is, the breech block and the cam, broadly and without any qualification, as recited in the first clause of claim, are, in my opinion, found in the Burnside patent.

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X 31st Ques. Please answer the question directly whether you find the combination "substantially as described" in the Cochran patent shown in the Burnside patent?

Ans. Of those two elements I do.

X 32d Ques. Do you also find the same combination of these two elements "substantially as described" in the Cochran patent in the Whitney rifle?

Ans. Those two elements, unqualified, I do.

X 33d Ques. Now, do you consider any qualification an essential part of the claim, so that the elements are not found combined in the Whitney rifle "substantially as described" in Cochran's first claim?

Ans. I do. In view of the state of the art, in order to give any validity to the claim, that qualification, I think, is necessary, because without that the combination is found in the Burnside patent.

X 34th Ques. Now, do you consider any qualification an essential part of the claim, so that the elements are not found combined in

the Burnside patent "substantially as described" in Cochran's first claim?

Ans. I do not think that the simple changing of the lever by which the cam is actuated from beside the arm, as in the Burnside, to beneath the arm, as found in the Cochran, to involve invention, and I am, therefore, of the opinion that the combination
182 as recited in the first clause of claim is found entire in the Burnside patent.

X 35th Ques. You stated that the position of the lever by which the cam is actuated is substantially the same in the Whitney rifle as it is in the Burnside patent, yet you say that by reason of that difference, which is the same in each case, that the Whitney arm is substantially different from the Cochran, while the Burnside is substantially like it?

Ans. I have not stated, nor do I wish to be understood as stating, that the lever by which the cam is actuated in the Whitney arm is substantially like or similar to the lever in either the Burnside or the Cochran. In both the Burnside and the Cochran the lever is substantially a part of the cam which it actuates and must move with the cam and upon the same axis, whereas in the Whitney arm the lever is separate from and independent of the cam and hung upon a different axis, separate from the axis of the cam, and both turn in the same direction. What I wish to be understood is that the broad combination of the breech block and the locking cam in the Whitney rifle is substantially the same as these two parts in the Burnside patent, without considering the means for actuating the locking cam.

X 36th Ques. Do you find that same broad combination that you find in Cochran's first claim (without considering the means of actuating the locking brace) in the Whitney rifle?

Ans. I do, and also in the Burnside.

X 37th Ques. Do you consider the means of actuating the locking brace an essential part of Cochran's first claim?

Ans. Some means for actuating the cam is necessary in order to make an operative combination, but there is no means directly
183 recited in that claim as an element of that claim. To make it an operative claim, therefore, I do consider some means as essential.

X 38th Ques. Question repeated. I asked you whether you considered the means an essential part, and you answer that you consider some means an essential part. I therefore repeat the question.

Ans. As I understand the question, and in view of the state of the art, and to make what I understand to be a valid claim, I do consider "the means" an essential part of that claim.

By consent of parties hearing adjourned to Tuesday, June 8th, 1875, at 2 o'clock p. m.

JOHNSON T. PLATT, *Examiner.*

184 TUESDAY, *June 8th*, 1875.

Parties met pursuant to adjournment.

Cross-examination of Mr. EARLE continued by Mr. BETTS:

X 39th Ques. Have you examined the records of the Patent Office in order to ascertain what ones of the patents of John W. Cochran enumerated in the 25th question were assigned in whole or in part at any time after their issue?

Ans. I have not.

X 40th Ques. All you know about them is that they were issued in the name of Cochran individually?

Ans. That is all; as they appear by the reports.

X 41st Ques. In your answer to the 5th question you say, referring to the Cochran patent, "as constructed in Fig. 3 the locking brace comes to a bearing in the frame so soon as the brace is turned back out of the path of the breech block, hence the lever could not be turned, and the breech block would, by the link, be held in its closed position." The difficulty in opening the breech block supposed by you in that answer is based on the supposition that a link is used connecting the brace and the breech block, as shown in Fig. 1, is it not?

Ans. It is, and that portion of my answer was given to explain the difference between the model and the drawing.

X 42d Ques. Now, in Fig. 3 there is no link connecting the breech block and the brace, is there?

Ans. There is not.

X 43d Ques. Does not the specification of the patent say: "If desired, a link or rod, *l*, may be used to connect lever *e* with
185 an arm or projection formed on the lower extremity of the breech block"?

Ans. Those words are found in the specifications.

X 44th Ques. You regard the use of the link as optional, do you not?

Ans. I do.

X 45th Ques. You have termed the locking brace in the Cochran patent a "cam." Do you find that word anywhere in the Cochran patent?

Ans. I do not, and I used it there, as I have to the same part in reference to the other exhibits, only in the sense of a locking device?

X 46th Ques. Do you find in the Cochran patent the following description of the part that you have termed a "cam": "This lever *e*, being pivoted on a bolt, *a*, and having its front end formed substantially as shown so as to form a strong brace resting against the rear of side of the breech block, and thus brace it firmly in place, as clearly shown in Figs. 1 and 2?

Ans. I do.

X 47th Ques. In the Burnside patent of March 25th, 1856, do you find the following as the description of the part that you have called the "cam": "H is a bolt which passes transversely through

the stock immediately in the rear of the movable breech piece or chamber. This bolt is cylindrical, and is cut away on one side of it to enable the breech piece or chamber to be returned to its place. The bolt is then revolved by the thumb piece or handle I, by which means its cylindrical portion is caused to enter a corresponding cavity, *g*, in the breech piece or chamber, which is thus held securely in its place"?

186 A. That is a correct quotation.

Redirect examination by Mr. THURSTON:

1st Ques. Did you ever hear of a gun being constructed according to the structure shown and described in the said John W. Cochran patent?

Ans. I never did.

2d Ques. You have been asked in cross-examination relative to whether the Burnside arm was a successful arm or otherwise. Are you able to state what was the breech loader that was first furnished to the troops during the war of the rebellion?

Ans. I am not.

3d Ques. When you say, in answer to the 21st question, that you had heard that the manufacturers of the Burnside arm had failed in business after concluding an order for ten thousand (10,000), do you refer to the copartnership of Burnside & Bishop or to the Burnside Rifle Company?

Ans. I cannot answer the question. I did not know that there was ever more than one manufacturer, and do not remember the name of that one. All I know about them is from what I have heard.

4th Ques. In your opinion, as an expert, is the Perry arm as represented in the Perry patent an arm capable of practically working?

(Question objected to by complainant's counsel, as not proper subject for redirect examination.)

Ans. It is.

5th Ques. Referring to the structure shown in said Cochran patent, state whether the pivot upon which the brace lever turns

187 does or does not resist the whole reactionary force of the explosion.

Ans. It does not. As represented in Figs. 1 and 2, which show the breech as closed and locked, the brace is brought to a bearing against the frame, and it would necessarily take some portion of the direct strain brought upon the brace in the reaction of the breech piece.

6th Ques. Suppose the pivot should fail in any degree, what would be the effect in the operation of the arm?

Ans. The breech piece must necessarily be thrown back by the recoil.

7th Ques. Please look at letters patent granted to Leonard Geiger Jan. 27, 1863, and state whether you find therein the combination of a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point with a brace other than

the nose of the hammer pivoted to the frame in the rear of said block?

(Complainant's counsel objects to the interrogatory, so far as the same tends to prove, or is intended to prove, any invention or knowledge or use of any invention, described in the Cochran patent as anticipating Cochran's invention, and because the matters to which the interrogatory relates are not referred to in the answer.)

Counsel for defendants explains that it is the object of the interrogatory to call out the fact that during the period of time existing between the withdrawal of the application by Cochran and the renewal of the application the same general combination was represented in the patent mentioned in the interrogatory.

188 (Complainant's counsel objects to said line of inquiry, as immaterial, but waives any objection to the inquiry as so limited, on the ground that said letters patent are not mentioned in the answer.)

Ans. I do find such a construction and combination in the said Geiger patent.

8th Ques. How is the brace in said Cochran patent arranged to swing in unlocking the breech?

Ans. Upward and backward.

9th Ques. Please look at the letters patent granted to James Stillman Oct. 17, 1865, and state what combination of breech block and brace other than the nose of the hammer you find exhibited therein.

(Objected to by complainant's counsel as immaterial.)

Ans. I find a breech block pivoted below the barrel, and so that in opening it swings backward and downward in the arc of a circle. In the rear of this breech is a locking cam or shoulder pivoted in the frame, so that in unlocking the breech piece it moves upward and backward in the arc of a circle. The said shoulder, when the breech is in its closed position, presses beneath the rear or under side of the breech piece so as to securely lock it in its closed position.

10th Ques. Please look at the letters patent granted to Laidley & Emery May 15, 1866, and state what combination you find therein of a breech block and a brace other than the nose of the hammer.

(Complainant's counsel makes the same objection as to 7th question.)

189 Ans. I find a breech block hung below the rear end of the barrel and so as to swing backward and downward in the arc of a circle in opening the breech. Combined with this is a locking shoulder hung upon a pivot in the rear of the breech piece and so as to swing upward and backward in unlocking the breech piece, and so that when the breech piece is closed the locking shoulder passes beneath the breech piece so as to securely lock it in its closed position.

11th Ques. Have you personally examined the original Perry model on file in the Patent Office; and, if so, how lately?

Ans. I have; on Thursday last, the third of June.

12th Ques. State how the same compares with the Exhibit Perry Model put in evidence in this case with reference to size of the brace and the construction of the pivots.

(Objected to, as incompetent, for the reason that the model referred to is a record in the Patent Office, and said original model or record, or a certified copy thereof, is the best evidence of its construction or similarity to the Perry model.)

Ans. There are two models in the case. The one which shows construction like the Exhibit Perry Model has very small pivots; I think very little larger, if any, than that shown in the certified drawing.

13th Ques. You have stated that there are two models belonging to the Perry patent. What are the characteristics of the second model?

(Complainant's counsel make the same objections as to 12th question.)

190 Ans. The second model has the breech block the same, but the cam is part of the lever which is beneath the frame, but is pivoted to the breech block the same as the cam in this Exhibit Perry Model, and the turning of the lever turns the cam directly away from its locking position. The pivots in that model, I think, are larger than in the drawing.

JOHN E. EARLE.

Defendant's counsel puts in evidence the patent of A. D. Perry, November 20th, 1854, No. 12001, marked Defendant's Exhibit Perry Patent.

Also patent of A. E. Burnside, March 25, 1856, No. 14491, marked Defendant's Exhibit Burnside Patent.

Also the patent of Thomas Lee, April 27th, 1858, No. 20073, marked Defendant's Exhibit Lee Patent.

Also the French patent of Flobert, 17th November, 1855, marked Defendant's Exhibit Flobert Patent.

Also addition to the same, July 22, 1856, marked Defendant's Exhibit Flobert Addition.

Also letters patent to Leonard Geiger, assignee to Charles C. Alger, dated January 27, 1863, marked Defendant's Exhibit Geiger Patent.

(Objected to, as immaterial.)

Also letters patent granted to James Stillman, October 17, 1865, marked Defendant's Exhibit Stillman Patent.

(Objected to, as immaterial.)

Also letters patent to Laidley and Emery, May 15, 1866, marked Defendant's Exhibit Laidley and Emery Patent.

191 (Objected to, as immaterial.)

Also certified copy of the file wrapper, contents, and drawings in

the matter of the rejected application of John W. Cochran, filed January 11, 1859, marked Defendant's Exhibit Cochran File Wrapper.

Hearing adjourned till Wednesday, June 9th, at 9 o'clock a. m.
JOHNSON T. PLATT, *Examiner.*

NEW HAVEN, *June 8th*, 1875.

JOHN HALDEMAN, a witness produced by and on behalf of the defendants, after being duly cautioned and sworn to tell the truth, the whole truth, and nothing but the truth in the matter of controversy herein, to interrogatories propounded by B. F. THURSTON, Esq., answered as follows:

1st Ques. What is your name, age, residence, and occupation?

Ans. John Haldeman; age, forty-nine years; residence, near Philadelphia, and no active occupation at present.

2d Ques. Were you acquainted at any time with John W. Cochran; if so, when did your acquaintance commence with him, and how long did it continue?

Ans. I first became acquainted with him about 1864, and continued until the time of his death, about two or three years ago.

3d Ques. How thorough was your acquaintance with him during that period?

192 Ans. I was brought into intimate business relation with him by the purchase of the foreign patents from him of a breech-loading gun.

4th Ques. What was the invention exhibited in breech-loading guns by said letters patent, and if you are able to refer to any American patent of his for the same invention it will sufficiently answer the question?

Ans. The patent was the same as that of which he made some disposition to Mr. A. B. Howe.

[5th Ques.] Please state any facts within your knowledge which will go to show what pecuniary means said John W. Cochran possessed at any time during the period of your acquaintance with him.

(Objected to, so far as the same calls for conclusions of the witness, as incompetent.)

Ans. Running over the years 1865 and 1866 I paid Mr. Cochran myself in the neighborhood of eighteen thousand dollars.

6th Ques. Upon what consideration was this money paid to him?

Ans. For his foreign patents of the breech-loading gun mentioned.

7th Ques. During the period of your acquaintance with the said John W. Cochran had he any family dependent upon him for support, to your knowledge?

Ans. Not to my knowledge. I always saw him in lodgings.

8th Ques. Did you at any time visit England for the purpose of disposing of any interest in the foreign patents above mentioned; if so, in what year?

Ans. I did; in the years 1866 and 1867.

193 9th Ques. Did you, during that period, meet the said Cochran in England?

Ans. I met him there in 1867.

10th Ques. In what business was he engaged, do you know, in England?

Ans. Endeavoring to dispose of some gun patent.

11th Ques. Some patent for an invention of his own?

Ans. Yes, sir.

12th Ques. Do you know whether he was there on his own account?

Ans. I do not.

13th Ques. Can you describe the invention?

Ans. I cannot.

Cross-examination by Mr. BETTS:

X 1st Ques. Can you tell the date when you first made any payment of money to said Cochran?

Ans. Not the exact date.

X 2d Ques. How many payments did you make to him?

Ans. I can't tell what the number was. The first payment, I think, was in the neighborhood of five thousand dollars.

X 3d Ques. About how many?

Ans. And the payments thereafter were a thousand dollars a month.

X 4th Ques. Do you know what his pecuniary circumstances were before you commenced to make any payments to him?

Ans. I have no means of knowing.

X 5th Ques. Did you hear, at the time, whether he was, prior to that time, largely in debt?

194 Ans. I did not, to my knowledge.

X 6th Ques. Did you know or hear at the time anything about any family that he had?

Ans. I heard that he had for some time been separated from his wife. I have no personal knowledge of it.

X 7th Ques. Where was he living at the time?

Ans. Well, he changed his lodgings. I can't tell you where. His lodgings were at different places. I was forced to see him often when he was unable to be out, and went to his lodgings.

X 8th Ques. Why was he unable to be out?

Ans. I think it was very often owing to his habits. He at times drank very hard.

X 9th Ques. During the time of your acquaintance with him was he in good health?

Ans. He seemed to be in remarkably good health, except when suffering from the result of dissipation.

X 10th Ques. How much of the time was he suffering from the results of dissipation, as you say?

Ans. I can't answer that definitely, but it was pretty frequent—quite frequent.

X 11th Ques. The greater part of the time?

Ans. That I would not like to say.

X 12th Ques. What time of the year, 1867, was it that you saw him in England?

Ans. Between April and July.

X 13th Ques. Do you know when he went to England?

Ans. I do not.

X 14th Ques. Do you know how long he remained there?

Ans. Not the exact time.

195 X 15th Ques. Do you understand that he came over to England for the purpose of disposing of the gun patent or patents that you say he was endeavoring to dispose of?

Ans. I so understood from Mr. Cochran himself, and he showed me the gun.

X 16th Ques. Please give the date of your going to England on that occasion.

Ans. I went over first in October, 1866, came home in February, 1867, returned in April, 1867, and came back about the first of July, 1867.

X 17th Ques. Did Mr. Cochran go over to England before the time, say of your second visit, and remain after your return?

Ans. I do not know. I only recollect having met him there within that time.

X 18th Ques. Look at the drawings of the patent of John W. Cochran, dated May 7th, 1872, No. 126,446, and state whether you ever knew or heard of any gun of his of that description from him?

Ans. I don't recollect it, though I might have seen it.

X 19th Ques. Did you ever hear him say anything in regard to any application of his for a patent which he had made to the Patent Office for a breech-loading gun other than the one you purchased?

Ans. Yes; he showed me, in London, a finished gun in 1867, which he claimed to be an improvement.

X 20th Ques. Did you ever hear him say anything in regard to any application of his for a patent for a breech-loading gun which had been rejected by the Patent Office?

Ans. I think I did.

196 X 21st Ques. When was that?

Ans. Some time after my return from England in 1867.

X 22d Ques. Do you remember what it was that he said?

Ans. Not in a definite way. I can only recall it in a general way.

X 23d Ques. State what you remember.

Ans. The substance of it was, as near as I can recollect, that he was going to have some reissue, and bring everybody tributary to him.

X 24th Ques. When was this?

Ans. Some time after my return.

X 25th Ques. What year?

Ans. After 1867. I returned about July, 1867. The exact time I can't tell you.

X 26th Ques. Did you ever hear anything about this matter at any other time before?

Ans. Not to my knowledge. He would not be apt to communi-

cate it to me previously till he had all his money. My impression is that he would not.

X 27th Ques. Do you remember what the construction of the gun was that he showed you in London?

Ans. I do not.

X 28th Ques. Do you remember whether it had a swinging breech block or not?

Ans. I cannot tell you.

X 29th Ques. How long have you been interested in the manufacture of fire-arms?

Ans. Never.

X 30th Ques. What was your occupation from 1865 to 1867?

197 Ans. Connected with the manufacture of car springs.

X 31st Ques. In what firm or company?

Ans. The Union Car Spring Company.

X 32d Ques. Did you live in Philadelphia at that time?

Ans. I lived in Stamford, Conn., doing business in New York.

X 33d Ques. Was the money which you say you paid to Mr. Cochran paid by you individually of your own money?

Ans. Yes.

X 34th Ques. Did you buy these patents on your own account?

Ans. I bought them to give James W. Evans, who introduced Cochran to me, one-quarter interest in the invention.

X 35th Ques. Who was James W. Evans?

Ans. He was in my employ in the Car Spring Company at the time.

X 36th Ques. Is he alive now?

Ans. I believe he is, the last I heard of him.

X 37th Ques. If so, where does he reside?

Ans. I think he resides in New York.

X 38th Ques. Do you know what disposition Mr. Cochran made of the money that you paid him?

Ans. I do not.

Redirect examination:

1st Ques. Please look at the drawing now shown you, marked J. W. Cochran, Breach-Loading Fire-Arm, Patented April 4, 1865, No. 47088, and say whether the same represents the invention which was contained in the English patent which you testified you purchased of Cochran.

198 Ans. It does.

2d Ques. In what estimation did the said Cochran hold the invention, the English patent for which you have testified he sold you?

Ans. Of course to me he claimed it to be the invention which was more valuable than any other.

Recross-examination:

R. X 1st Ques. You don't know, do you, as matter of fact, what relative value he placed upon different inventions of his?

Ans. Other than his own statement that this would supersede all

others. I had much more faith in Evans' mechanical judgment than in Mr. Cochran's. Evans, in the strongest way possible, corroborated Mr. Cochran's statement, that this improvement would exactly meet the want of the day and age.

R. X 2d Ques. What did you understand was the disposition made of the first payment of five thousand dollars that you say was made to Cochran?

Ans. My impression was that it required that sum, and that he expended that sum in procuring the English and continental patents and preparing the guns used as models.

JOHN HALDEMAN.

199 NEW HAVEN, *May 29th*, 1875.

ELI WHITNEY, a witness produced by and on behalf of the defendants, of lawful age, after being duly cautioned and sworn to tell the truth, the whole truth, and nothing but the truth in the matter of controversy herein, to interrogatories propounded by B. F. THURSTON, Esq., answered as follows:

1st Ques. Are you one of the defendants in this action?

Ans. I am.

2d Ques. For how long have you been practically acquainted with the manufacture of fire-arms, and what acquaintance have you as the result of study, observation, or experience with the art to which the subject of fire-arms relates.

Ans. I have been acquainted with the subject for 32 years, and as the result of my study in the manufacture of arms, I have been instrumental in causing to be manufactured, and having a general superintendency of the same, a large amount of different kinds of muzzle-loading and breech-loading fire-arms, to wit, about two thousand flint-lock muskets, about forty thousand United States rifles, about eighty thousand Springfield rifle-muskets, calibre $\frac{58}{100}$ of an inch, model of '55, also one hundred to one hundred and fifty thousand revolvers of that class known as the Colt revolver, and about one hundred thousand of that class of revolvers which are loaded at the breech, and using metallic ammunition or metal cartridge cases; about ten thousand breech-loading pistols, and as far back as 1853 manufactured from three to five hundred breech-loading fire-arms in which the breech block was pivoted to the frame so as to spring backward and downward in the arc of a circle, having
200 a brace on the side of the frame for the purpose of locking the same or retaining the breech block in place at the time of the discharge. I have also obtained six or more patents for breech-loading fire-arms of my own invention, and have made a large number of miscellaneous arms. I have made the subject of fire-arms, and also the manufacture of the same during the period above mentioned, a study.

3d Ques. Have you read and do you understand the letters patent granted to John W. Cochran, dated May 7th, 1872?

Ans. I believe I do, having read it.

4th Ques. What is the combination of devices, as you understand it, which is recited in the first claim of said patent?

Ans. The combination is that of a breech block, pivoted to the frame below the bore of the barrel, but in line with the same, so constructed as to swing backwards and downwards, in combination with a locking shoulder or brace which is pivoted in the rear of the breech block, and is operated by a lever attached to the brace, which is underneath the frame, so that the said brace may be operated by pressing forward the lever to unlock the said breech block, in all cases the lever and brace being rigidly attached to each other and operated from below the frame.

5th Ques. Do you understand the letters patent granted to A. D. Perry, dated November 28th, 1854? And, if you say that you do understand the same, please describe the combination of devices exhibited in said patent for opening and closing the breech and securing the breech block when the breech is closed.

Ans. I have read the patent, and believe I do understand the same. I find there is described in this patent a breech block, pivoted below the bore of the barrel, operating parallel with the bore
201 of the barrel, springing backwards and downwards in the arc of a circle, having a brace pivoted in the rear of the same, which is also attached to a lever by means of a link, so that by the depression of the lever the brace shall be removed from its seat, thereby permitting, by the further depression of the lever, the complete opening of the breech, preparatory for loading the arm. After the piece is loaded, by reversing the motion of the lever or bringing it back to its place motion is imparted both to the breech block and the brace by which the arm is securely locked preparatory for a discharge of the same.

6th Ques. Have you examined the letters patent granted to A. E. Burnside, dated March 25th, 1856, and do you understand the same? And, if you say that you do, describe what is the combination of devices therein shown for opening and closing the breech and locking the breech block when the breech is closed.

Ans. I have read the patent, and believe I understand the same. It is for a breech-loading fire-arm, which has a breech block pivoted below the bore of the barrel, operating in a line with the same, by swinging backward and downward in the arc of a circle, operated by a lever underneath, and when closed is locked by a cam or brace which is pivoted in the rear of the breech block, and is operated by a lever, which imparts the necessary motion to the cam or brace, and is so arranged that the said cam must swing upwards and backwards in unlocking the breech, and forwards while the same is locked.

7th Ques. Have you examined the letters patent granted to T. Lee, April 27th, 1858, and do you understand the same? And, if you say that you do understand said patent, describe the combination of devices therein shown for opening and closing the breech and locking the breech block when the breech is closed.

202 Ans. I have examined the patent, and I believe I understand the same.

This patent is for a breech-loading fire-arm, having a breech block pivoted below the bore of the barrel, operating while opening and

closing in a line with the same, in combination with the brace or locking shoulder other than the nose of the hammer attached to a lever rigidly, the motion for locking and unlocking the breech block being upward and downward in the arc of a circle.

8th Ques. Please state whether the defendant's gun "Exhibit Whitney Rifle" contains the invention recited in the first clause of claim of the Cochran patent, and give the reasons fully for the opinion you may express, taking in view in giving your answer the said patents of Perry, Burnside, and Lee, to which your attention has been just directed, and also the letters patent to Flobert, November 17th, 1855.

Ans. When the state of the art preceding the Cochran invention, as exhibited by said four patents, is taken in consideration, though the "Whitney Rifle" has a locking brace, it is not within the province of claim, if properly construed, of the Cochran patent.

The locking brace in the Cochran patent is operated by a lever rigidly attached to the same, the motion being in all cases imparted to the locking brace through said lever by means of the hand both in locking and unlocking the breech block, while in the "Whitney Rifle" the brace or locking shoulder is independent of a lever, and when closing acts automatically, receiving its motion as in the Flobert patent, by means of a spring—the said brace in the
203 "Whitney Rifle" being independent of the hammer in all its motions. I would simply add that I consider that the combination recited in the first claim of the Cochran patent is contained in the previous invention described in the letters patent to A. E. Burnside, dated March 25th, 1856, so far as the points of invention are concerned in the Cochran patent, being contained in the first claim which is in dispute in this suit, viz., a locking brace swinging upwards and backwards in unlocking a breech block pivoted so as to swing backwards and downwards in the arc of a circle around a fixed point with a brace other than the nose of the hammer pivoted to the frame in the rear of said block.

(Adjourned to Tuesday, the 8th day of June, 1875.)

NEW HAVEN, TUESDAY, *June* 8, 1875.

Parties met at 9 a. m. pursuant to adjournment.

Direct examination of ELI WHITNEY continued by Mr. THURSTON:

9th Ques. Are you familiar with letters patent granted to James Stillman Oct. 17, 1865, also with letters patent granted to Laidley & Emery, dated May 15, 1866?

(Complainant's counsel make the same objection as was made to Question 7th in the redirect examination of the witness Earle, and defendants' counsel make the same limitation to the question as was made to Question 7th in redirect examination of said Earle.)

Ans. I am.

10th Ques. By whom are those patents owned?

204 Ans. They are owned by the Whitney Arms Company, or by myself.

11th Ques. State whether any part of the Whitney arm represented by the Exhibit Whitney Rifle, embodies the inventions described and shown in said Stillman and Laidley & Emery patents?

(Objected to by complainant's counsel, as immaterial.)

Ans. The Whitney rifle as now constructed, and as it has been, embodies both those patents, they constituting a material part the construction of the arms that have been made by the Whitney Arms Company, and are the basis on which we manufacture and hold our right to manufacture that class of fire-arms of which Exhibit Whitney Rifle is an example.

12th Ques. What features of construction found in Exhibit Whitney Rifle are found also in the said Stillman, or in the said Laidley & Emery patents?

(Objected to by complainant's counsel, as immaterial.)

Ans. The parts used in the construction of the Whitney rifle peculiar to the Stillman patent are a breech block swinging in the arc of a circle and locked by a brace which is actuated by a spring, which spring is other than the mainspring of the lock. And the peculiar advantage which it possesses over other arms of similar construction is that on closing the breech it is locked automatically by the movement of the spring on the brace. Also in the spring which actuates the breech block independent of the action of the hand on opening. The parts comprehended in the Laidley & Emery patent used in the manufacture of the Whitney rifle are, first,
205 a lever attached to the fulcrum point on which the breech block swings, independent of the breech block during part of its motion, and while it is performing other functions than that of opening the breech block. First the lever moves the firing pin, then it cams back the locking shoulder, then it causes the opening of the breech block, and the lever being first brought to its place, the breech block has independent action by means the spring of aforesaid as being part of the Stillman patent. The locking shoulder is operated also by a spring independent of the mainspring, and independent of the hammer, though the hammer is pivoted on the same pin as the locking shoulder; but in all their motions they are independent of each other, namely the locking shoulder and the hammer. The advantage that this arm possesses over other arms that have been made, and which have been brought into general use, are, first, that owing to the automatic action of the locking shoulder the breech block is locked on being closed by hand, thereby avoiding serious accidents which have happened in other well known arms, having a breech block and locking shoulder. This construction of the arm has four advantages; first, the firing pin is moved back before the breech is unlocked; second, it can be loaded on the half-cock, which is extremely important in all military fire-arms; third, owing to the independent action of the breech block, while it is independent of the lever, it has a movement imparted to it by a spring which causes in its last downward movement of opening the

breech block to take effect upon the extractor, thereby filliping the cartridge shell after it has been partly withdrawn from its chamber in the barrel. The other, the fourth advantage, is that which has been already stated, that the breech is locked as soon as it is
206 closed by hand; and these advantages are possessed by no other fire-arm as a whole, having a breech block and a brace to lock the same when closed.

13th Ques. Please to look at letters patent granted to Leonard Geiger, assignor of Charles C. Alger, dated Jan. 27, 1863, and state whether you do or do not find there in the combination of a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point with a brace other than the nose of the hammer?

(Same objection as to 7th question in redirect examination of witness Earle, with same limitation.)

Ans. I do.

14th Ques. How in said Geiger patent is the brace arranged to swing in unlocking the breech?

Ans. It swings upward and backward.

15th Ques. For how many years have you personally been cognizant of the fact that breech-loading fire-arms have been in public use and on sale, having the combination in some form of a breech block, pivoted so as to swing backward and downward in the arc of a circle around a fixed point, with a brace to hold such breech block shut, other than the nose of the hammer pivoted to the frame in the rear of the block, and arranged to swing upward in unlocking the breech?

Ans. It is my impression that arms of that character were manufactured and sold in 1865, or in the early part of 1866. Experimental trials were made before different military boards by different parties making models previous to that time, 1865–66, and were probably offered for sale.

16th Ques. By what name were these guns to which you refer known in the market?

207 Ans. They were known as the Remington, the Remington gun being manufactured in 1864–'5 under the Ryder patent, five thousand (5,000) or more being manufactured by the Savage Arms Co., at Middletown, in 1864–'5.

17th Ques. Did such guns to which you refer have a breech block moving backward and downward in the arc of a circle, around a fixed point, in combination with a brace to hold such breech block shut other than the nose of the hammer, such brace being arranged to swing upward and backward in unlocking the breech?

Ans. Some of them did, namely, some of those manufactured by Remington, had the features spoken of in the question—had the breech block swinging in the arc of a circle and a brace other than the nose of the hammer swinging upward and backward in unlocking the breech.

18th Ques. Can you state of your own knowledge whether for more than two years before the month of April, 1868, fire-arms were

in public use and on sale in this country having the combination of a breech block pivoted so as to swing backward and downward in the arc of a circle, around a fixed point, with a brace other than the nose of the hammer pivoted to the frame in the rear of the block, such brace being arranged to swing upward in unlocking the breech?

(Objected to, as incompetent and involving a question of law, and as calling for the witness' judgment upon a question of law, without giving the facts; also, because the witness has given in a previous answer his knowledge on the subject, and that the above question is leading.)

208 Ans. You ask me what about general use. I would like to know what you mean by general use. It is my impression that they were in general use. The facts can be readily ascertained. These arms were offered at different trials of fire-arms to the U. S. Government, and tested by army boards, more than two years before April, 1868.

19th Ques. Please look at the file wrapper and contents belonging to the rejected application of J. W. Cochran, filed January 11, 1859, and state whether the description of the arm therein contained, and the drawing connected with such description, contain the invention set forth and shown in letters patent to John W. Cochran in suit in this case.

(Objected to, as the record to which the witness is referred is best evidence of its contents.)

Ans. I think that the file wrapper and contents do set forth the invention of Cochran as patented in 1872. I consider it the same.

20th Ques. Were you acquainted with John W. Cochran, the party to whom the letters patent were granted which are in issue in this case?

Ans. I was.

21st Ques. When did your acquaintance commence with him, and for how long did it continue?

Ans. My acquaintance commenced with him in 1864. I was introduced to him at Bridgeport, and he had then a gun which he had invented, and which he thought very highly of, and took me and some other gentlemen to see it in some building near the depot, in the town of Bridgeport, Conn. It was the occasion of an auction sale of gun machinery at an establishment near the Wheeler
209 and Wilson's sewing machine concern, where the Ballard gun had been manufactured by Messrs. Dwight and Chapin, who had failed. I knew him from that time up to the time of his death in January, 1873.

22d Ques. Were you at any time engaged in the manufacture of a gun containing any invention of the said Cochran?

Ans. I was, in 1866.

23d Ques. Describe the gun which contained the invention of said Cochran, to which you refer, by reference to any American patent for the same.

Ans. It was the patent of April 4th, 1865, to John Webster Cochran.

24th Ques. Does the drawing attached to the deposition of John Haldeman correctly represent the invention contained in the gun which you so manufactured?

Ans. It correctly represents the plan and construction of the *of the* gun in all its principal details, but with relation to the cartridge extractor, the drawings do not fully represent the gun as manufactured by the Whitney Arms Co. in 1866. While I was engaged in the manufacture of these arms of Cochran, I was acting as president of the Whitney Arms Co., they taking the contract to manufacture with A. B. Howe, of New York. I negotiated the contract with Howe, as president of the company. John W. Cochran was the inspector, and had the whole dictation of how the models should be made, and every detail of the manufacture of the arms.

25th Ques. In what estimation was the gun represented by said drawing held by Cochran?

Ans. It was held in very high estimation by Cochran, he representing it to me as the gun of all others to meet the wants of
210 the world at large for breech-loading fire-arms, both for sporting and for military purposes. His gun was subjected to trials, one or more, by boards of army officers, at one of which Gen. Grant was present and some other distinguished officers of the late war. He showed me letters, one letter from Gen. Grant, and letters from other distinguished officers, speaking in the highest terms of this gun of Cochran's. The contract with A. B. Howe was for (10,000) ten thousand, and Cochran, as both Mr. Howe and Cochran told me, had sold to Howe his American patent dated April 4th, 1865, and Cochran was to receive a royalty of a dollar on a gun. When a certain number of guns had been made, and the royalty paid, Howe was to own the patent, and in consideration of the agreement that Howe had advanced to Cochran quite a sum of money.

(Complainants' counsel object to statements of the declarations of John W. Cochran, and statements of transactions with him, and communications to or with this witness as incompetent.)

26th Ques. State what you know of your own knowledge of the pecuniary resources of John W. Cochran during the period of time that you were acquainted with him?

Ans. He seemed to have ample means; enough for all his purposes and his expenses. He frequently made visits at the Whitneyville Armory during the execution of this contract with A. B. Howe. He never spoke of any impecuniosity, but spoke of the extreme value of that particular gun that we were making; that he had sold the foreign patents, and that Mr. A. B. Howe had paid, and had agreed to pay, a large amount of money to him.

(Same objection as before; and also the answer is objected to, so far as it states conclusions of the witness, as incompetent.)

211 27th Ques. Did he exhibit any appearances of impecuniosity?

(Same objection as to question 25.)

Ans. No; he was well dressed, and there was nothing in his appearance that would distinguish him from many men who were worth a hundred thousand dollars.

28th Ques. Have you here, and will you produce, a sample of the guns containing the said Cochran invention to which you have referred, which were manufactured by the Whitney Arms Company under the contract with A. B. Howe?

Ans. I have, and produce the same, marked Exhibit Cochran Gun, patent of April 4, 1865.

29th Ques. When did you first learn of the existence of any invention of the said Cochran, such as is described in the letters patent in suit in this case?

Ans. It was during the year 1870 or 1871 that I heard of it, but then did not know the exact construction of the Cochran gun; only knew that he had some plan of piracy upon the other patents, the patents of others, by raking up some old thing that he claimed previously to have invented, and trying, by means of sharp practice, to work it through the Patent Office.

(Complainant's counsel objects to the statement of the opinion of the witness on Cochran's conduct, as incompetent and improper.)

30th Ques. How frequently were you in the habit of seeing Mr. Cochran during the period of time which you have given as the period of your acquaintance with him?

Ans. From the time that I was first introduced to him, in 1864, up to the time that the contract was made by the Whitney
212 Arms Co. with A. B. Howe, of New York, I saw him but a few times. But during the execution of that contract I saw him frequently at the Whitneyville armory, and had long conversations with him about these arms, the arm we were making, his previous inventions, and the inventions of others. I was in the habit of seeing him about every week or ten days during the whole of the time that we were executing the contract.

31st Ques. During that time did the said Cochran ever bring to your knowledge or inform you of the existence of any invention made by him such as is shown in the letters patent in suit in this case?

(Objected to, as incompetent.)

Ans. Never. I have no recollection of it.

32d Ques. During the time of your acquaintance with the said Cochran was the Remington gun ever a subject of discussion between you and him?

(Objected to, as incompetent.)

Ans. All the different fire-arms that had been tried before military boards were spoken of, and, among others, the Peabody and Remington, which were prominent at that time, and Cochran spoke to me of the Remington arm.

33d Ques. State what opinion was expressed by Cochran concerning the value of the system exhibited in the Remington gun, if any.

(Objected to, as incompetent.)

Ans. His opinion was unfavorable to it. He spoke of it as not mechanical in construction; that the support to the breech block was not in the line of fire, and spoke of it as a gun not likely to succeed, as one that would eventually fail.

213 34th Ques. Locate as nearly as you can the time when he so criticised the Remington gun.

(Objected to, as incompetent.)

Ans. It was in the spring of 1866.

At this point the hearing was adjourned till June 28th, at 2 p. m., to meet at the same place.

JOHNSON T. PLATT, *Examiner.*

MONDAY, *June 28th*, 1875.

The parties met pursuant to adjournment.

Cross-examination by Mr. BETTS:

X 1st Ques. You spoke in your direct examination of having at one time manufactured some rifles under a patent of John W. Cochran's, dated April 4, 1865; when was that?

Ans. That was the winter and spring of 1866.

X 2d Ques. Please state how long you were engaged in executing that contract.

Ans. We were employed, according to the best of my recollection, from four to six months in fitting up the tools and making the few arms that were made under that contract, Mr. A. B. Howe, with whom the agreement was made, having failed to fulfil his part of the contract.

X 3d Ques. Please state as nearly as you can the latest date when you were engaged in working in any way under that contract.

214 Ans. To the best of my recollection the latest date was the early part of March, 1866.

X 4th Ques. Will you please state how you arrive at that date?

Ans. I arrive at that date by the general recollection I have when the work was stopped and the men were paid, who had been working on that branch of work, and from the fact that much disappointment occurred on the part of the men, that the manufacture of these guns was to be discontinued.

X 5th Ques. Have you any means of fixing the time of executing the contract more definitely?

Ans. I have, by reference to books kept by the secretary of the Whitney Arms Co., and by the original contract that was made with A. B. Howe.

X 6th Ques. Will you produce those for the purpose of fixing the date, either now or at a subsequent session?

Ans. I will endeavor to produce them at a subsequent session, so far as they may be necessary for the purpose of this trial.

X 7th Ques. You say that that gun patented April 4, 1865, was held in very high estimation by Cochran, did you also hold a high estimate of that gun?

Ans. I did not, but thought it might have a certain amount of success, as many arms of different plans and constructions had met with a certain amount of success which warranted their manufacture.

X 8th Ques. How nearly was the contract completed?

Ans. There were only a few hundred arms made.

X 9th Ques. Do you know of your own knowledge how
215 much money was paid or advanced to Cochran by Mr. Howe in connection with that contract?

Ans. To the best of my recollection it was four or five thousand dollars.

X 10th Ques. Do you know anything of that of your own knowledge?

Ans. I do not; I only know from what Cochran told me, and from the information which the clerk of Mr. Howe gave me at that time.

(Plaintiffs' counsel objects to that part of the answer of the witness after the words "I do not," as irresponsive and incompetent. Also to the previous answers of the witness on the same subject for the same reasons, now that it appears that witness' information is based on hearsay.)

X 11th Ques. You said in answer to the 21st question that you knew Mr. Cochran up to the time of his death in January, 1873, after the completion of the Howe contract, did you have any frequent occasion to meet or talk with him?

Ans. I did not.

X 11th Ques. How often did you see him during that interval of years?

Ans. But a few times; I cannot say how often.

X 12th Ques. As many as three times?

Ans. More than that; I possibly may have met him, altogether, six, eight, or ten times during those years.

X 13th Ques. What was the occasion of your meeting him during those years?

Ans. I met him a few times after he had sued the estate of A.
B. Howe, Mr. Howe having died in February, 1868, with ref-
216 erence to that suit, and a claim I had against the estate of A. B. Howe, which I afterwards compromised.

X 14th Ques. Any other occasion?

Ans. I met him two or three times casually, and once by appointment.

X 15th Ques. On what subject was the appointment made?

Ans. A patent which he owned, or said he owned, or had an interest in.

X 16th Ques. What patent?

Ans. A patent for a breech-loading fire-arm, May 7th, 1872.

X 17th Ques. The same upon which this suit is brought?

Ans. The same.

X 18th Ques. Who was present at that interview besides yourself and Mr. Cochran?

Ans. A Mr. Vermeiele and a Mr. Hovey, who were said to be officers of the United States Rifle and Cartridge Co.

X 19th Ques. Any one else?

Ans. Not that I recollect.

X 20th Ques. Where was this interview held?

Ans. At the office of Mr. Hovey and Mr. Vermeiele, in the city of New York.

X 21st Ques. Did you have under discussion that time the taking of a license by your company under the patent on which this suit is brought?

Ans. I did.

X 22d Ques. Did you offer to take a license?

Ans. They offered me a license and I declined it.

X 23d Ques. Did you not also offer to take a license on certain terms?

217 Ans. I may have done so, but have no recollection of the terms.

X 24th Ques. Didn't you offer to pay a license fee of sixty cents a gun, and pay five thousand dollars down in advance?

Ans. No.

X 25th Ques. Do you remember at all what you did offer?

(Counsel for defendants objects to this testimony as being irrelevant.)

Ans. Now that I think more upon the subject, I am under the impression that I offered to pay a royalty of fifty cents per gun, though I considered it an extremely doubtful patent, and one that was trumped up to levy blackmail upon other manufacturers.

X 26th Ques. Was that for a simple license or an exclusive license?

Ans. A simple license.

X 27th Ques. Were the representatives of the company then present willing to give you a license on those terms?

Ans. Not unless I made a large advance of money. I was then under the impression, on a limited investigation of the subject, that we might infringe upon that patent, and that the patent had more validity than it actually possesses.

X 28th Ques. Please state exactly what did occur at that interview in order.

Ans. Mr. Hovey offered me a license to take fifty cents on a gun manufactured by the Whitney Arms Co., and $5,000 advance, which I declined.

X 29th Ques. What next occurred at that interview?

218 Ans. Nothing except a general conversation about the subject; that ended the matter.

X 30th Ques. Can you state any of the conversation relating to this patent, or your taking a license under it?

Ans. Now that I think further on the subject, I recollect a de-

tailed statement given me by Mr. Hovey of the manner in which he lobbied through the bill passed by Congress of July, 1870, which he said he was instrumental in having passed to affect this patent of John W. Cochran, and the patent of the rubber top for pencils of one Gray, I think, and that it was owing to his influence that that law was passed by the cunning insertion of the word "withdrawn" and other provisions which would enable him, as I then thought, to levy blackmail upon established manufacturers, who were not aware of his machinations and privately interested phraseology which he too successfully succeeded in having inserted in the law, thereby using a public law virtually of his own creation for his own private gain and that of those associated with him.

(Complainants' counsel objects to the statement of the witness' opinion upon the actions and motives of the persons whom he has spoken of, and also to his opinion in regard to law and its operation, as incompetent and improper.)

X 31st Ques. Can you remember anything else said at that interview in regard to this patent or your taking a license under it?

Ans. Nothing.

X 32d Ques. This gun which it was proposed to have you licensed to make under the Cochran patent—was that the same gun as Exhibit Whitney Rifle?

219 Ans. It was.

X 33d Ques. Between 1866 and January, 1873, were you on such friendly terms with Mr. Cochran that he would be likely to talk with you in regard to inventions he had made?

A. Yes, if occasion required.

X 34th Ques. When did you first learn of the plan of construction of the Cochran gun as described in the patent—that is, when did you first learn that Cochran had invented such a plan of construction?

Ans. I did not understand the precise construction of the gun until the issuing of the patent, May 7, 1872.

X 35th Ques. When did you first learn of its substantial features as invented by Cochran and embodied in an application?

Ans. Some time during the year 1872.

X 36th Ques. Before the patent was granted?

Ans. After the patent was granted.

X 37th Ques. Did you not know what the substantial features of Cochran's invention were until after the patent was granted?

Ans. I have no distinct recollection that I did.

X 38th Ques. You said that at some time during your acquaintance with Cochran the Remington gun was a subject of discussion, and that his opinion was unfavorable to it. What particular Remington gun was that, the present rifle or the one you say was made by the Savage Arms Co., at Middletown?

Ans. The present rifle.

X 39th Ques. Please state how that discussion arose—what the occasion of it was.

220 Ans. It arose from speaking of the trials before different military boards, and the different kinds of breech-loading fire-arms.

X 40th Ques. At what army board had the present Remington rifle been tried at that time?

Ans. The army board that convened at Springfield January 4th, 1865, and also one called the Hancock board that convened at Washington, I think, in February, March, or April, 1866.

X 41st Ques. Do you mean to say that the present Remington rifle was tried before the Springfield board which convened January, 1865?

Ans. It was virtually the same gun, for it had a breech block swinging backward and downward in the arc of a circle, and a locking shoulder attached to the hammer, which locked when the trigger was pulled in the act of firing, substantially in the same way as the arm now constructed by E. Remington & Sons.

X 42d Ques. Were you present at any meetings of that Springfield board, and did you see any trials of the gun you have referred to?

Ans. I was not at the trials, but was at Springfield during the session of that board, and saw and handled many of the guns offered and on trial, and among others the gun known at that time as the Remington gun, the construction of which I understood, and it was afterwards photographed on a card with about 39 others, which card was entered according to act of Congress, and a copy of which I have, and have had since 1865, and which I can show here to-day, if so desired.

X 43d Ques. Please produce the card you have referred to.

221 (Witness produces card inquired for, and hands it to counsel for complainants.)

(Complainants' counsel offers the card produced, and the same is marked Complainants' Exhibit Gun Photographs.)

X 44th Ques. Do you know what the result of the trial of that Remington gun was before the Springfield board?

Ans. I do not, except it was considered a good arm, and was often spoken of as well as the Laidley and Emery gun, which was tried before the same board, the Laidley gun being known at that time as the Chick gun, and is so named on the card just offered of photographs of breech-loading fire-arms tried before the board convenep January 4th, 1865.

X 45th Ques. Didn't you know that the Remington gun broke down upon that trial?

Ans. I did not; but if it did it was owing to the weakness of the material, and not the plan of construction.

X 46th Ques. You don't know, do you, anything about the trials of the guns of your own knowledge?

Ans. Not from my own observation, as I was not present; but from reports made at the time as to the character of the different arms.

X 47th Ques. Did your conversation with Mr. Cochran have ref-

erence to the trial of the Remington gun before this Springfield board?

Ans. Not so much before that board as the Hancock board, before which I understand Cochran's gun was tried, and I understood that the Remington gun as now made was tried before the Hancock board.

222 (Complainants' counsel objects to statements by the witness what he understood.)

X 48th Ques. In regard to Cochran's opinion of what you say was virtually the present Remington gun, you say: "His opinion was unfavorable to it; he spoke of it as not mechanical in construction; that the support of the breech block was not in the line of fire." Did you agree with him in that opinion?

Ans. I had formed no conclusive opinion then in regard to the arm.

X 49th Ques. Had you formed any opinion?

Ans. I had a general opinion in regard to it.

X 50th Ques. Did that opinion agree with Cochran's?

Ans. Not altogether.

X 51st Ques. How did you differ from Cochran?

Ans. Cochran condemned the arm *in toto*. I thought the plan of the construction of the breech and locking shoulder was a compact one, and if the parts were made strong enough it might be that the Remington gun as well as the Laidley gun, known as the Chick, would be serviceable arms.

X 52d Ques. In regard to the objection that you say Cochran advanced, that the gun was not mechanical in construction, that the support of the breech block was not in the line of fire, what was your opinion on that point?

Ans. I had no definite opinion at that time other than that I have expressed.

X 53d Ques. What is your opinion now on that point?

Ans. Favorable in some respects. The Remington arm, in my opinion, is an unsafe arm, as has been proved by the accidents that have happened at Springfield in the trials there, in
223 Austria, in the hands of troops in Spain, and as a sporting rifle in the West, owing to the fact that the breech is not locked when closed, and is only locked permanently when the hammer descends to explode the piece.

(The counsel for complainant objects to so much of the answer of the witness as relates to matters outside of his own knowledge, and also to the statement of alleged disadvantages of the Remington gun due to other features than those inquired about, as irresponsive and immaterial.)

X 54th Ques. Do I understand you to mean that your opinion is favorable to a gun in which the support of the breech block is not in the line of fire; and, if so, why?

Ans. I have a favorable opinion of some guns constructed as suggested in the question, provided that the breech is at all times

locked, so that the recoil shoulder, though not in the line of fire, is ready to receive the recoil when the breech is closed.

X 55th Ques. Why do you prefer a gun in which the support of the breech block is a brace, pivoted behind the breech block and below it—below the line of fire—instead of one where there is a direct rear support in the line of fire, other things being equal?

(Question objected to by defendants' counsel as assuming a preference on the part of the witness which he has not yet expressed.)

Ans. It is very obvious that a gun supported directly in the line of fire has an advantage over a gun supported in any other way, but it is convenient sometimes to construct a gun wherein the support of the breech block, when closed, is not directly in the line of fire,
owing to other qualities which it is important to introduce
224 into a gun, namely, top action, short motion in opening and closing the breech, thereby facilitating the manipulation of the arm when used.

X 56th Ques. Please answer a little more fully so that the court may understand what you mean by top action, and what the advantages of top action are?

Ans. I mean by top action in an arm—one so constructed that the ordinary process of opening and closing the breech and locking the same is produced by levers on the upper side or top of the piece as distinguished from those arms that are constructed with a lever underneath, as the guard is underneath, to operate the opening and closing of the breech—as there are many kinds of fire-arms constructed on both plans.

X 57th Ques. Do I understand you to mean that an arm in which the breech block is supported by a brace pivoted in the rear of the breech block, not in the line of fire, is one better adapted to top action than an arm having a direct rear support to the breech block?

Ans. I do not wish to be so understood.

X 58th Ques. Then will you please explain what you meant when you stated in your answer to the 55th X question that "it is convenient sometimes to construct a gun wherein the support of the breech block when closed is not directly in the line of fire owing to other qualities which it is important to introduce into a gun, namely, top action"?

Ans. I mean by that that the motions of top-action guns are short motions usually, which are always considered advantageous in the manipulation of the breech system, viz., in opening and closing the breech.

Adjourned to Tuesday, June 29th, at 9 a. m.

225 TUESDAY, *June 29th*, 1875.

X 59th Ques. Do you mean that top action in a gun is the same thing as short motions, or are they different?

Ans. Top action in a gun does not necessarily imply short motion in a gun; but top action admits of shorter motion being obtained in opening and closing the breech than can be obtained by effecting the same purpose by a lever underneath the frame. The motions of

the Remington gun and the Whitney-Laidley gun are short comparatively; but shorter motions have been obtained by top action in other systems of breech-loading fire-arms.

X 60th Ques. What other systems?

Ans. The Smoot; the Needham; the Joslyn; the two other systems of the Whitney, and various other guns.

X 61st Ques. In an arm which has a breech block pivoted below the barrel and swinging backwards and downwards in opening, which arrangement admits of the shortest motions—one in which there is a solid, direct rear support in the line of fire, or one in which there is a movable brace below the line of fire?

Ans. One in which there is a movable brace.

X 62d Ques. Did you ever know of any difficulty from clogging occurring in guns which are provided with a swinging breech block supported in the line of fire by a stationary rear support?

Ans. I have known experimental guns when improperly constructed, and having a stationary support in the line of fire to clog;
but if such guns were constructed as they should have been,
226 and the ammunition is of the right plan of construction, there
is no practical liability of the gun's clogging to such an extent as to impair its use.

X 63d Ques. In the Whitney rifle, why do you construct the breech block and arrange it in the arm so that it is pivoted below the barrel, and swings backwards and downwards in opening in the arc of a circle?

Ans. Because it is one of the practical ways of constructing an arm.

X 64th Ques. Do you prefer that mode of arranging and operating the breech block to any other?

Ans. I do, provided the arm possesses the functions and qualities contained in the Whitney-Laidley gun.

X 65th Ques. Why do you use for the support of your breech block a brace other than the nose of the hammer?

Ans. Because the Laidley and Emery patent admits of that plan of construction wherein the locking brace is entirely independent of the hammer in all its operations and functions, thereby giving it a great advantage over arms previously constructed having a breech block swinging backwards and downwards—the locking brace on this plan having automatic action by means of a spring other than the main spring of the lock, which causes the brace to lock the breech as soon as it is closed, thereby preventing the liability to accident which has happened to some other guns having a breech block swinging backwards and downwards in the arc of a circle.

X 66th Ques. Do you consider it an advantage to have the supporting brace for the breech block separate and distinct from the nose of the hammer?

Ans. I do, provided the brace has automatic and indepen-
227. dent action which locks the breech without any movement of
the hand to close the same, other than the simple action of closing the breech by top lever—a lever projecting above the frame.

X 67th Ques. You have answered the previous question by coup-

ling the arrangement spoken of with another feature; I now ask you again whether there is any advantage in locking the breech block with a brace other than the nose of the hammer, instead of relying upon the nose of the hammer alone for the support of the breech block?

Ans. Yes, as in the Burnside and the Perry and the Lee patents, wherein it is the purpose to construct a fire-arm wherein the locking brace is to be moved by hand, but those arms in use wherein the locking brace is operated by a spring, of which the Flobert is one, having the nose of the hammer for a brace, relates to a different class of fire-arms from those first mentioned.

X 68th Ques. You say that there is an advantage in locking the breech block with a brace other than the nose of the hammer; will you state what that advantage is?

Ans. There is no advantage, unless you wish to construct a fire-arm similar to theirs, which class of fire-arms has virtually gone into disuse.

X 69th Ques. Will you please state what the advantage is in using a brace other than the nose of the hammer?

Ans. The advantage is that it leaves the hammer free from performing the function of a locking brace, provided the brace is independent of the hammer in its operations and functions.

X 70th Ques. Is it a correct principle in fire-arms where certainty of action is important that each piece or part should have only one function to perform?

228 Ans. The best breech-loading fire-arms are so constructed, though in some cases a piece may perform two functions or more without injury to the arm.

X 71st Ques. Do you consider an arm which has the breech block supported against the recoil by the nose of the hammer only as safely and securely locked as one which has a separate brace turning down and under the breech block, as in the Whitney rifle?

Ans. I do, if properly constructed.

X 72d Ques. What do you mean by "if properly constructed;" what is the necessary construction to make it as safe?

Ans. Making the nose of the hammer which constitutes the brace and the slot or groove into which the nose of the hammer would enter of the right curve and the parts of sufficient strength, which any mechanic of good judgment would be able to effect.

X 73d Ques Did you ever know of a rifle having been practically made which had its breech block supported against the recoil only by the nose of the hammer?

Ans. Oh, yes; there were several of them made in France in 1854–'5, under the patent of M. Flobert, and the inventor to-day most positively affirms that the gun known as the Remington gun is constructed virtually on his plan and after his invention; that is to say, the hammer is used as a locking brace for the breech block. Pistols have also been constructed on the same plan, as well as rifles, and I have a rifle that was constructed by said Flobert some twenty years ago, and have also seen a pistol that was exhibited at the London Exposition constructed by said Flobert, both guns being on the same plan.

229 (Counsel for complainants objects to the statement of the witness as to what M. Flobert asserts as incompetent and improper.)

X 74th Ques. Do you know anything about the French manufacture of Flobert guns, except what you have heard?

Ans. I have received information by letter from both France and England that such arms have been introduced in both those countries.

(Counsel for complainants objects to answer of witness as incompetent and improper.)

X 75th Ques. Question repeated.

Ans. No.

X 76th Ques. How long have you had the gun which you say was made some twenty years ago by said Flobert?

Ans. Not over five years.

X 77th Ques. You have never seen fit to make any guns on that plan yourself, have you?

Ans. I have not, from the fact that I consider a locking shoulder, when attached to the hammer in such a fire-arm as the Flobert or Remington, objectionable when compared with other known methods of arranging a locking brace.

X 78th Ques. Have you the gun here which you say was made by Flobert?

Ans. I have, all except the stock, which was made at Whitneyville.

(Complainants' counsel offers the gun in evidence, and it is marked Whitney Flobert Exhibit.)

X 79th Ques. When you say that you consider a locking shoulder when attached to the hammer objectionable as compared with
230 other known methods of arranging a locking brace, do you mean that it is objectionable as compared with the method of locking the breech by a locking brace other than the nose of the hammer, which is turned under and below the breech block as in the Whitney rifle?

Ans. I do, particularly from the fact that the breech of the arm is not locked until the trigger is pulled to fire it.

X 80th Ques. Is another advantage of having the locking brace other than the hammer that the hammer can be arranged to cock without unlocking the breech?

Ans. Yes.

X 81st Ques. Why do you arrange the brace in the Whitney rifle to swing upward in unlocking the breech?

Ans. Because the patent of Laidley and Emery, which claims the invention of placing the hammer and locking shoulder on the same fulcrum pin or pivot, admits of such construction.

X 82d Ques. Do you mean to say that you adopt that construction merely because there is such a claim in the Laidley and Emery patent?

Ans. I do, and because the invention is a good one, and I also

think that no practical arm can be made as good in any other way wherein there is not a similar breech block and locking shoulder.

X 83d Ques. If the invention was not a good one in itself you would not adopt it, would you, because it happened to be claimed in the Laidley and Emery patent?

Ans. I would not.

X 84th Ques. Will you please state the advantages which exist in a gun, or which a gun is capable of having applied to it,
231 which has the lever arranged to swing upwards in unlocking the breech?

Ans. I have before described the principal advantage of such a brace in the Whitney-Laidley gun, as constructed by the Whitney Arms Co., which relates to a different class of fire-arms from those which have a similar locking shoulder, attached rigidly to a lever which is placed underneath the arm to be operated by hand, but I do not think the last class of inventions mentioned has any advantage over other fire-arms which have ever received the merit of being introduced into general use.

X 85th Ques. Do you consider the arrangement of the brace, so as to swing upward in unlocking the breech, has any advantage over an arrangement of the brace so as to swing downward in unlocking the breech?

Ans. It has, provided it is not attached rigidly to a lever underneath the arm.

X 86th Ques. You consider, then, the arrangement of the brace to swing upward in unlocking as advantageous in itself, but the method of operating it by the addition of a lever underneath the arm as a poor one?

Ans. I do, provided the arm is so constructed that the brace may be operated by means of a spring and a lever, independent of the brace operated from above or on top of the arm, and provided the different parts are so arranged that the breech shall be firmly locked by the automatic action of the brace, as soon as it is closed by hand, by means of the top lever aforesaid.

X 87th Ques. Will you please confine your answer to the features about which you are interrogated without encumbering and obscuring it by the statement of additional features which
232 you think your gun has the advantage of possessing?

Question repeated.

Ans. I do consider the method of swinging the locking shoulder upward as advantageous when properly connected with a practical improved method of bringing action to the locking shoulder for locking and unlocking the breech, for the brace itself without any mode of operating it for the purpose above mentioned would be useless.

X 88th Ques. What advantage is there in making the brace swing upward in unlocking instead of downward?

Ans. There is no great practical advantage in it; it is one of the convenient methods of constructing a breech-loading fire-arm; but a locking shoulder could be made to swing downward in unlocking and upwards in locking; that would furnish just as firm and substantial a brace as the method described in the question.

X 89th Ques. Is convenience in the method of constructing and operating a fire-arm an important feature?

Ans. It is, and both methods mentioned in the answer to the last question are equally convenient.

X 90th Ques. Why, then, do you adopt the arrangement by which the brace swings upward instead of downward?

Ans. From the fact that I bought the Laidley and Emery and Stillman patents, which seemed to be the best at the time we engaged in the manufacture of the Whitney-Laidley gun, and after having made an investment in the business of over a hundred thousand dollars, and the other method being no better than the Stillman or the Laidley, we had no good reason to incur the expense of making the change.

233 X 91st Ques. Isn't it true, Mr. Whitney, that Mr. Earle advised you to make a locking shoulder which would turn downward before you made your first arm, and that you, nevertheless, preferred to make it to swing upward?

Ans. I have no recollection of his having advised it before or after I made my first arm or at any time.

X 92d Ques. Mr. Earle swore in his evidence as follows: "I have advised Mr. Whitney to make a locking shoulder that would turn downward, and believe it could be better done than in its present form. It was before the suit was commenced, and before he made his first arm, and while he was discussing and perfecting the improvement." Is that true or not?

Ans. I do not say that he did or did not, but if he did the suggestion was so crude that it did not attract me sufficiently to fasten the subject in my memory, for I do not now know what plan he proposed to adopt.

X 93d Ques. Does not the mode of construction whereby the brace moves upward in the act of unlocking and downward in the act of locking offer greater facilities for effecting with simplicity and compactness the following result, among others, which I read from the specification of the Laidley and Emery patent: "Should the spring by any accident fail to perform its function, the hammer K in its descent would force the brace D under the breech block, or the brace D would prevent the hammer from striking the firing pin, so that it is impossible to fire the arm unless the breech block is locked securely"?

Ans. There is an advantage in the Laidley and Emery gun, in having the locking shoulder and hammer on the same pin or fulcrum, as it aids the compactness of the parts; but the feature

234 mentioned in the Laidley patent, in case the spring that operates the locking shoulder is broken that the hammer would carry the locking shoulder under the breech block before it would explode the piece, thereby rendering the locking of the breech securely, is not applicable to the Whitney-Laidley gun as now constructed by the Whitney Arms Co., and now exemplified in the arm, a skeleton of the breech system of the Whitney-Laidley gun now produced as an example of the arms manufactured by them, only a few having been made in the respects above mentioned in accord-

ance with that part of the specification of the Laidley patent contained in the question. Skeleton produced, marked "Defendant's Exhibit Whitney Breech-Loading System."

X 94th Ques. Now, will you please answer the question directly, without referring to other features, and without remarking what particular guns have the advantages spoken of, and what not?

Ans. Yes.

X 95th Ques. Is it not true both with respect to Exhibit Whitney Rifle and the Exhibit Defendant's Exhibit Whitney Breech-Loading System that in case the spring which operates the locking shoulder is broken that the hammer in its descent would force the brace under the breech block or the brace would prevent the hammer from striking the firing pin?

Ans. It may possibly be the case in Exhibit Whitney Rifle, like which but few have been made; but not in the exhibit marked Defendant's Exhibit Whitney Breech-Loading System, which represents the arm now manufactured by the Whitney Arms Co., though in either case the locking shoulder does or may prevent the
235 descent of the hammer, but in the case of the last exhibit mentioned it is impossible with any ordinary use of the arm, in case the said spring that operates the locking shoulder should be broken, for the locking shoulder to pass under the breech block, for it would be arrested by the breech block itself, not being sufficiently closed to allow of the passage of the locking shoulder under the breech block, for the spring which lies under the breech block prevents the closing of the breech unless the breech is held closed by the hand.

X 96th Ques. The locking shoulder in both specimens does prevent the descent of the hammer, not may prevent it, unless the breech is locked—is not that so?

Ans. Yes.

X 97th Ques. Now, Mr. Whitney, is it not true that it is an advantage in a fire-arm in simplicity and compactness, to have the brace swing in unlocking and locking in the same direction that the hammer swings in cocking and firing.

Ans. No.

X 98th Ques. Do you mean that that is not true generally?

Ans. Yes.

X 99th Ques. Is it true in your gun?

Ans. Yes.

X 100th Ques. Do you think it is generally true that a gun is more simple and compact when the motions for opening and closing and locking and unlocking the breech, and cocking and firing are different from each other?

Ans. Quite as much so in some cases.

X 101st Ques. Why do you construct your rifle with the brace pivoted to the frame in the rear of the breech block?

Ans. Because we think that the combination of the breech
236 block and locking shoulder in the position that we place them in the Whitney-Laidley gun in combination with the other devices of the Laidley & Emery patent, and also of the Whitney

patent or patents, make together a very desirable gun, and one which meets with public favor wherever it is shown, and also wherever it is tested for the qualities which the best military arms should possess.

X 102d Ques. What advantage is there in pivoting the brace in the rear of the breech block over pivoting it in front of the breech block?

Ans. It offers a more sufficient gag or stop against the movement of the breech from the effects of the gas at the time of firing the piece.

X 103d Ques. Why do you not use in your gun a solid stationary, rear support, for the breech block in the line of fire?

Ans. For the reasons above stated, that we have adopted the Whitney-Laidley-Emery-Stillman system, and it would cost us an expenditure of several thousand dollars to make a different arm, and there has not yet been sufficient inducement to do so, from the fact that the arm we are making has received, does receive, and will receive the approbation to which its merits entitle it.

X 104th Ques. You have answered that the reason why you use the feature that you do use is because you adopted it. Now I want to know why you adopted it in preference to any other?

Ans. Because it was the best arm that offered itself at the time that we decided to embark the manufacture of a breech-loading military fire-arm.

X 105th Ques. What do you mean by saying that it offered itself?

237 Ans. I mean by that phrase, on investigation of the subject of breech-loading fire-arms, I found the merits of the Laidley system recommended themselves to my mind as favorably, and a little more so just at that time, than any other system.

X 106th Ques. Well, would you to-day, aside from the question of expense in making the change, alter your gun from one having a movable brace in the rear of the breech block below the line of fire to one having a solid stationary support in the line of fire?

Ans. I would, had I supposed that I would be subject to a series of suits by a wealthy and overbearing corporation who are determined to monopolize, if possible, the gun constructed with a breech block hung below the barrel in the frame of the gun, and having a locking shoulder other than the nose of the hammer swinging upwards and downwards, whatever may be the arrangement of the locking shoulder in other respects. I took the advice of Charles M. Keller before I engaged in the manufacture of the Whitney-Laidley gun as to its infringement upon the gun or patent of any other party, and particular reference was had to the gun manufactured by E. Remington & Sons, under the patent of one Leonard Geiger, and I was assured most positively that my gun did not infringe in any respect whatever the patent or patents involved in the said Remington fire-arm, and still think the opinion of Mr. Keller was the correct one.

(Complainants' counsel objects to the statement by the witness of what the opinion of third parties was, as immaterial and incompetent.)

X 107th Ques. Is that the best answer you can give to that question? (Question No. 106 reread.)

238 Ans. The best answer that I can give to the previous question is, that I think the Whitney-Laidley gun possesses more good qualities than any other fire-arm that I have ever seen of its class, and I am borne out in that opinion by many competent officers and experts who have made the subject of fire-arms their study, and have thereby been able to compare the Whitney arm as now constructed with other well-known breech-loading fire-arms.

(Complainants' counsel objects to the whole answer as irresponsive and immaterial, and to that part of the answer in which the opinions of others are stated as incompetent.)

X 108th Ques. How many rifles have the defendants manufactured containing a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point, with a brace other than the nose of the hammer pivoted to the frame in the rear of said block, said brace being arranged to swing upward in unlocking the breech?

Ans. About 5,000.

X 109th Ques. Does that include all the carbines and other arms, as well as rifles, containing those features?

Ans. It does.

X 110th Ques. When did the defendants commence to manufacture said arms?

Ans. I think it was in the year 1872; but nearly two years previous to that time had been spent in fitting up the small tools and fixtures at an expense of from $30,000 to $50,000, besides the machinery used in the manufacture of the arm.

X 111th Ques. When you first commenced to fit up the small tools and fixtures nearly two years before the commencement of manufacture, was that done with special reference to construct-

239 ing an arm having the features recited in the 108th question?

(108th question read.)

Ans. It was.

X 112th Ques. How early did you decide on constructing an arm having those features?

Ans. In the year 1870 or 1871.

X 113th Ques. Please state the date more accurately.

A. I have not the data by me to state it more accurately, without reference to my books.

X 114th Ques. Had you ever made any fire-arms having the features referred to before 1870?

Ans. I had not; neither had the Whitney Arms Co.

X 115th Ques. You spoke of some arms having been manufactured by the Savage Arms Co., at Middletown, in 1864 or 1865, known as the "Remington arm." Did those guns have the brace pivoted in rear of the breech block or in front?

Ans. Not to my knowledge; though the Savage Arms Co. may

have manufactured arms of the character in question. I would amend that answer (the question having been reread) by saying that most of the arms manufactured by the Savage Arms Co. have the locking shoulder pivoted in front of the breech block, though arms having the locking shoulder pivoted in the rear of the breech block may have been manufactured.

X 116th Ques. Do you know that any arms were manufactured by the Savage Arms Co., at the time referred to, with the brace pivoted in the rear of the breech block?

Ans. I do not.

X 117th Ques. Then why do you insinuate that some may have been made in that way, if you know nothing about it?

240 Ans. Because in the years 1864 and 1865 E. Remington and Sons were in possession of an arm having a locking shoulder attached to the hammer swinging upwards and downwards in the arc of a circle pivoted to the frame in the rear of the breech block, which may have been made by said Savage Arms Co. for E. Remington and Sons without my knowledge.

X 118th Ques. In answer to the 60th X question you mentioned the systems of Smoot, Needham, Jocelyn, and Whitney as having shorter motions than the Whitney rifle. Can you refer to the patents in which those systems are embodied or described?

Ans. The Jocelyn patent was dated October 8th, 1861, No. 33435. The dates of any of the others I am unable to furnish at present, but can furnish the dates of numerous other patents having equally short motion with the Jocelyn, namely: The patent of S. W. Wood, April 1st, 1872, No. 34854. The patent of L. Albright, dated May 5th, 1863, No. 38366. The patent of S. Strong, May 19th, 1863, No. 38644. The patent of J. Warner, Feb. 23d, 1864, No. 41732. The patent of H. Berdan, Jan. 10th, 1865, No. 45909. The patent of H. Hammond, of Dec. 31st, 1867, No. 72849. The patent, also, of J. Werndl, of Feb. 18th, 1868, No. 74737. The patent of J. Sneider, dated Oct. 15th, 1867, No. 69941, and several others.

X 119th Ques. All those patents, including the Jocelyn, are for guns in which the breech swings laterally on a longitudinal pin are they not?

[Ans.] They are, except the Whitney, which swings laterally, but is pivoted on a perpendicular pin.

X 112th Ques. You stated yesterday that you would pro-

241 duce the original contract made with Mr. Howe for the purpose of fixing the date of the execution of it. Have you done so?

Ans. Not yet.

X 121st Ques. You have stated that you are familiar with and understand the patents of James Stillman dated October 17th, 1865, and that of Laidley and Emery dated May 15th, 1866, and that of Leonard Geiger, assignor to Charles C. Alger, dated January 27th, 1863. Does any one or more of those patents show and describe the invention set forth in the first claim of the patent of John W. Cochran of May 7th, 1872, substantially as there described and claimed; if so, which one or ones?

Ans. Not substantially as described, but substantially as claimed in the first claim of the said patent of said Cochran, which was evidently drawn with special reference to the patents named in the question.

X 122d Ques. Then do you think that your gun, which was constructed under the Laidley and Emery patent and Stillman patent, contains and embodies the invention substantially as claimed in the first claim of the Cochran patent?

Ans. I do, except as the proviso is made at the end of the said claim, viz., "substantially as described."

X 123d Ques. You have said that the Laidley and Emery and Stillman patents show the invention substantially as claimed in the first claim of said Cochran's patent. Is not the same true of your gun, the Whitney rifle?

Ans. Not substantially as described, which is the proviso of the first claim of the Cochran patent, except so far as we have a breech block to swing backwards and downwards in the arc of a circle
242 around a fixed point, with a brace other than the nose of the hammer pivoted to the frame in the rear of said breech block, but the construction is not substantially as described.

(Question repeated.)

Ans. It is, so far as the Laidley and Stillman patents go.

X 124th Ques. What do you mean by that? Do you mean that it is or is not?

Ans. I mean that the Laidley and the Stillman and the Whitney each have a locking shoulder other than the nose of the hammer pivoted to the frame in the rear of the breech block, said brace being arranged to swing upward in unlocking the breech.

X 125th Ques. Well, you have still failed to answer whether, in your opinion, your gun contains the invention substantially as claimed in the first claim of the said Cochran patent. Please answer that question "yes" or "no"?

Ans. Yes, substantially as claimed, but not substantially as described.

X 126th Ques. You think, then, do you, that the claim is broader than the special description?

Ans. Yes, when it has reference to any other gun than the Cochran.

X 127th Ques. In the Burnside gun, as shown in the Exhibit Burnside Model, there is a solid stationary rear support in the line of fire, is there not?

Ans. Only in part. There is also a locking brace, other than the nose of the hammer, pivoted to the frame in the rear of said block, said brace being arranged to swing upward in unlocking the breech, substantially as described in the first claim of the Cochran patent, dated May 7, 1872, No. 126,446.

243 X 128th Ques. What do you mean by "only in part"? Do you mean that there is a solid stationary rear support in the line of fire, but that there is also a locking brace?

Ans. I mean that the frame in the rear of the breech block in the

Burnside gun furnishes only a partial support against the recoil of the breech block. The real locking shoulder or brace which safely locks the arm and sustains the recoil against the downward motion of the breech block, as in opening, is the locking shoulder or brace in the Burnside gun, mentioned in the answer to the previous question.

X 129th Ques. Do you mean deliberately to swear that the "bolt '*h*,'" as it is termed in the Burnside patent, is the real brace which sustains the recoil of the breech block in that gun?

Ans. I do not mean to say that it sustains the entire recoil, but it does in part, and prevents, by securely looking the breech, its opening from the recoil at the time of discharging the piece, and is capable, by enlargement, of sustaining the entire recoil, as in the Cochran.

X 130th Ques. You think that it is a correct and fair opinion to say that that bolt is the real brace which sustains the recoil. Isn't it a fact that that piece is so constructed by a rounding end to the breech block fitting into a corresponding hollow in the direct rear support, that at the moment of recoil the breech block cannot open at all, the bolt merely serving to latch it in position before and after the recoil?

Ans. I can only repeat that I consider the brace or locking shoulder, which swings upward and downward in the arc of a circle, sustains the most essential part of the recoil, and that the
244 arm would be entirely unsafe without said shoulder or brace locking the breech when closed.

X 131st Ques. Isn't it a fact that the breech block in that arm cannot open at the moment of recoil, owing to the configuration of the rear block, and the hollow into which it is thrown back by the recoil?

Ans. It is not, in my opinion, from the fact that the breech block is hung below the line of fire, thereby allowing the recoil at the time of the discharge to have a powerful lever action upon the breech block to throw it open, thereby allowing the charge to escape at the breech of the barrel.

X 132d Ques. Will you swear that the action of that arm as described in the patent, is not correctly described in the 130th and 131st questions? (130th and 131st questions reread.)

Ans. I do, owing to the fact that a part of the rear of the breech block is movable, and may, without the brace, be thrown down by the recoil of the discharge.

X 133d Ques. Isn't the fact that a part of the breech block is movable, the very one which occasions the rear of the block to be thrown back into the hollow behind it?

Ans. Yes; but when it is combined with a breech block that is hung below the barrel, a lever power is imparted at the same time to the movable piece which has a tendency to throw the piece down, and the movable piece admits of its being thrown down.

X 134th Ques. But it cannot be thrown down when the movable piece is thrown clear back, can it, while it is so thrown back?

Ans. I think it might be with a heavy charge; I should
245 consider the arm dangerous without the locking shoulder mentioned in the last answer.

X 135th Ques. Will you please open that breech block, without moving from its extreme backward position the movable part of the breech block?

Ans. It is necessary that the movable piece should move forward slightly from the extreme rear position when the breech or piece is opened.

X 136th Ques. Look at the circular I will show you. State if that is the business circular of the defendants.

Ans. It is.

(Circular produced marked "Complainants' Exhibit Defendants' Circular.")

ELI WHITNEY.

246 UNITED STATES OF AMERICA, } ss:
District of Connecticut, }

I, Johnson T. Platt, an examiner duly appointed by the circuit court of the United States for the district of Connecticut, in the second circuit, do hereby certify that the reason for taking the foregoing depositions is, and the fact is, the witnesses are material and necessary in the cause in the caption of the said depositions named.

I further certify that on the 28th and 29th days of May and the 8th, 9th, 28th, and 29th days of June, in the year of our Lord one thousand eight hundred and seventy-five, I was attended by Frederick H. Betts, Esq., counsel for complainants, and John S. Beach and B. F. Thurston, Esq'r's, counsel for defendants, and, by John E. Earle, John Haldeman, and Eli Whitney, the witnesses, who were of sound mind and lawful age, and the witnesses being by me first carefully examined and cautioned and sworn to testify the truth, the whole truth, and nothing but the truth, and their depositions being by me reduced to writing in the presence of the witnesses and from their statements, and after carefully reading the same to the witnesses they subscribed the same in my presence. I have retained the said depositions in my possession for the purpose of transmitting the same with my own hand to the court for which the same were taken.

247 And I do further certify that I am not of counsel nor attorney for either of the parties in the said depositions and caption named, nor in any way interested in the event of the cause named in said caption.

In testimony whereof, I hereunto set my hand, this twenty-ninth day of June, in the year of our Lord one thousand eight hundred and seventy-five.

JOHNSON T. PLATT,
An Examiner duly appointed by the Circuit Court of the United States for the District of Connecticut, in the Second Circuit.

248 United States Circuit Court, District of Connecticut. In Equity.

THE UNITED STATES RIFLE & CARTRIDGE COMPANY and E. REMINGTON & SONS

vs.

THE WHITNEY ARMS COMPANY, ELI WHITNEY, President, and ELI WHITNEY.

NEW HAVEN, *April* 27, 1876—11 a. m.

Present, counsel for the respective parties.

JOHN E. EARLE, a witness already examined on behalf of the defendants, being recalled, in answer to interrogatories proposed by BENJAMIN F. THURSTON, Esq., of counsel for defendants, deposes and says as follows:

Ques. 1. Have you been already examined on behalf of the defendants in this case?

Ans. I have.

249 Ques. 2. Please look at the letters patent issued to Louis Nicholas Auguste Flobert, dated Nov. 17, 1855, and state what invention you find therein described, and compare the arm described in said patent with the arm described in said Cochran patent, and point out specifically the differences between the two, and show wherein, if in any respect, they are substantially alike.

Ans. In the Flobert patent I find a breech-loading gun. In this gun I find a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point. I also find, combined with this breech block, a brace pivoted to the frame in rear of said block, said brace being arranged to swing upward in unlocking the breech.

In the Cochran patent I find a breech piece substantially the same in construction and operation as the breech piece in the Flobert arm, combined with a locking shoulder arranged and operated substantially the same as the locking shoulder in the Flobert arm, with this difference only, that in the Flobert arm the locking shoulder performs a double office of locking the breech piece, as before mentioned, and substantially as in the Cochran patent, and also to strike the cartridge to produce discharge when the cartridge is in its chamber. In other words, the Cochran differs from the Flobert only in placing the nose of the hammer in a different location. The locking shoulder is operated in the Cochran by a handle below, while the Flobert is operated by a handle above, but this I do not consider a material difference.

250 Ques. 3. Please look at the model now shown you, marked Exhibit Corrected Burnside Model, and state whether the same is a correct model of the arm described in the Burnside patent, and point out any errors which exist in the model of the Burnside patent, heretofore referred to.

Ans. This model, Exhibit Corrected Burnside Model, is made in accordance with the certified copy of the drawing of the patent to

Burnside, and correctly represents the structure shown in that drawing. The original model referred to was in error: First, that the surface of the frame in rear of the breech piece was made to conform to the shape of the breech piece through its entire extent above the locking shoulder, whereas, in the drawing, the surface of the frame corresponds to the surface of the breech piece only from the point about central with the axis of the bore of the barrel upward. From that point downward it is in substantially a tangential line from the circle of the surface above; second, the movable part of the breech piece in the original model is constructed with a slot upon its under side to set over the corresponding central tongue on the other part of the breech piece. This tongue and groove form a guide for the longitudinal movement of the movable part, whereas, in the drawing and in the corrected model, the tongue is formed on the movable part and the groove in the other part; third, the trigger guard is not of the same form in the original model as in the drawing and corrected model. These are the substantial differences between the two.

Ques. 4. The experts called on the part of the complainants in this case direct attention to the fact that the breech pin in the arm described in the Burnside patent forms a part of the breech block, and is made to slide. Is this circumstance sufficient, in your
251 judgment, to take the arm described in the Burnside patent out of the combination recited in the first claim of the said Cochran patent?

Ans. Not at all; because the claim calls only for "a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point." The breech block in the Burnside arms does all this, but, by virtue of that sliding, possesses an additional function, viz., that of ejecting the cartridge, without which second function the movement would be unnecessary, and, therefore, as qualifying the breech block in its relation to the breech block of the Cochran, I do not consider it to be an essential or material difference.

Ques. 5. Notwithstanding this construction shown in the Burnside arm of sliding cone seat, is it or not the fact that the locking bolt, as it is called in the patent, sustains any portion of the recoil incident to the discharge of the piece?

Ans. If the arm be constructed in accordance with the drawing the breech piece will bear against both the locking bolt and the surface of the frame above; hence both must take a proportionate part of the recoil, and such I understand to be the construction shown and described in the Burnside patent. To illustrate, if the surface of the breech piece should come a little short of the surface of the frame above the locking shoulder, the locking shoulder and its bearing surface on the breech piece being the same, then the entire strain of the explosion would come on the locking shoulder. Again, in the Burnside arm the locking bolt is the only support to prevent the breech piece from falling of its own gravity, save simply
252 the friction between the breech piece, its frame and bearing. So, in the Cochran, the locking cam is the only support for

the breech piece to prevent its falling backward of its own gravity, save by friction.

JOHN E. EARLE.

Examination adjourned to 34 Beach street, New York, to May 2, 1876, at 11 a. m., for cross-examination, if desired.

Examination taken, reduced to writing, and by the witness subscribed and sworn to, this 27th day of April, A. D. 1876, before me—

JOHNSON T. PLATT, *Examiner.*

253 *Testimony of Defendants' Witnesses, taken pursuant to the 67th Rule in Equity, as amended, before me, Wm. W. Douglas, U. S. Commissioner.*

United States Circuit Court, District of Connecticut. In Equity.

THE UNITED STATES RIFLE AND CARTRIDGE CO. and E. REMINGTON & SONS

vs.

THE WHITNEY ARMS COMPANY, ELI WHITNEY, President, and ELI WHITNEY.

PROVIDENCE, R. I., *May* 13, 1876.

Present: Benjamin F. Thurston, Esq., counsel for defendants.

AMBROSE E. BURNSIDE, a witness of lawful age produced on the part of the defendants, having been by me first duly cautioned and sworn to testify the truth, the whole truth, and nothing but
254 the truth in the matter in controversy herein, and being examined by BENJAMIN F. THURSTON, Esq., of counsel for the defendants, deposes and says as follows:

Q. 1. What is your name, age, residence, and employment?

A. Ambrose E. Burnside; age, 52; residence, Providence; I at present represent the State of Rhode Island as United States Senator, and am employed in my official duties.

Q. 2. State what has been your experience in the manufacture of breech-loading fire-arms.

A. I commenced to manufacture fire-arms in the fall of 1853 at Bristol, R. I., and followed it until the spring of 1859. During the whole of this time I was either experimenting in inventing breech-loading arms or manufacturing the same.

Q. 3. Are you a graduate of the Military Academy at West Point; and what positions in the army have you at different times held?

A. I graduated at West Point in 1847; was 2d lieutenant in the 3d artillery in the Mexican war, 1st lieutenant at the close of the war; resigned in 1853; colonel of the 1st R. I. regiment in 1851; brigadier general in 1861; major general in 1862, which position I held to the close of the civil war, when I resigned.

Q. 4. Are you the same person to whom letters patent of the United States for an improvement in breech-loading fire-arms, No. 14491, and dated March 25, 1856, were granted?

A. I am.

Ques. 5. Please state fully what is the invention set forth and described in said patent, and the successive stages of its development.

255 A. The letters patent fully explain the invention and the object of it. Service in the field had shown me that the great difficulty of making breech-loading arms (which were then new in the service) effective was the escape of gas at the junction of the breech and barrel. I was satisfied that if that joint could be broken by metal, or some other material, that the escape of gas could be prevented. With that view I constructed the cartridge and the swinging breech which are described in the letters patent. It will be seen by reference to the letters patent that if I had simply provided for a metallic cartridge of conical form, without providing for its ejection from the breech block, the gun would have been useless, because there would have been great difficulty in removing the cartridge case so I provided for a movable breech block which would, upon throwing down the chamber, as described in the letters patent, be moved forward, and would thus move the conical cartridge case out of its bed and loosen it, so that it could be easily taken out by the fingers. I thought that I could at the same time use this movable breech block or cone seat as a lock for the chamber, by constructing its base on a curve struck from a center, at some point within the axis of the barrel above the center upon which the breech block containing the chamber swung, so that the discharge of the charge would throw the movable cone seat of this breech piece into the curve of its base with sufficient power to prevent the chamber from being thrown around on its center. In practice I found that this would not answer. The simple indentation of a cartridge case would prevent its end from pressing tightly against the end of the breech piece or cone seat, and give it
256 sufficient play to allow a downward movement of the chamber upon the discharge of the gun; and in fact, with perfect cartridges, I found that my first method of locking the chamber was not at all efficient, and the arm thus constructed was not an efficient arm. To remedy this defect in the construction of the arm, I introduced the breech bolt described in the letters patent, which breech bolt remedied all the trouble in that respect.

Q. 6. Please state how extensive were your experiments for the purpose of producing an efficient breech-loading fire-arm, which resulted in the structure described in the said letters patent granted to you.

A. The experiments and work extended over months of continuous labor for a long time before I gave up the belief that my original method of locking the breech could be made effective. But the fact that it was not effective was patent to everybody in my works at Bristol.

Q. 7. Please state what modification of the fire-arm patented to you is described in the following language occurring in the specification: "But, as we may want to place the projecting portion of the curved surface lower down, as at T, for instance, and also for additional security, I have adopted the following device for the purpose

of more unfailingly accomplishing this end," &c. What curved surface is, in the above quotation, referred to, and how was such surface to be placed lower down?

A. In moving the chamber or breech piece on its center, with the base of the cone seat constructed on a curve, the center of which was on the line of the axis of the barrel, difficulty was experienced. Sometimes the chamber or breech piece would become jammed, and was removed with great difficulty, so that after the first
257 construction of the arm I had to move the pivot or the center of the curve of the base of the breech pin nearer to the pivot or center on which the breech block or chamber swings, and I was not quite certain that I would not have to adopt the plan which was afterwards adopted, of striking the curve of the cone seat from the same center as the curve of the breech piece. And for that reason I used the bolt H, which is described in that part of the specification next following the quotation in the question.

Q. 8. Please state whether the bolt H, described in your said patent, performs any office, and, if any, what, in preventing the breech block or chamber from blowing down upon the discharge of the cartridge.

A. It does perform the office of preventing it from blowing down, because, whilst very often, as the cone seat was originally constructed, the pressure of its base into its seat locked the chamber, yet it often failed to do so, and the bolt was a necessity to make an efficient arm.

Q. 9. What facts are within your knowledge connected with the manipulation and firing of a fire-arm such as is described in your said patent which go to prove that the bolt H is necessary to prevent the breech block or chamber from blowing down?

(Complainants' counsel objects to any testimony of prior use by this witness, as he was not stated in the answer to have been a prime user.)

A. On several occasions, during my personal experiments with the arm, before the use of the breech bolt, the chamber absolutely swung down more or less, whereby the joint between the
258 chamber and the barrel was open to an extent sufficient to allow cartridge-cases to be broken by the force of the explosion, or to allow great escape of gas, which proved that the tendency of the discharge was, in many cases, to throw the breech down.

Q. 10. State whether the accidents to which you have last referred, and which proved the fact to you which you have stated, occurred before your application for letters patent was made.

A. They occurred before my application.

Q. 11. How extensively were breech-loading fire-arms, known by the name of the Burnside breech-loading rifle, and containing the subject of invention described in your letters patent, manufactured before January, 1859?

A. They were not extensively manufactured before that time, but they were manufactured to private order and sold in 1856 and 1857, and during the summer and fall of 1858 I appeared before a board

of officers, ordered by the Secretary of War, at West Point, in competition with other breech-loading arms, and the arm received the unanimous recommendation from them as the best arm presented.

Q. 12. Where was your armory for the manufacture of fire-arms located, and when did you cease to be connected with the manufacture?

A. At Bristol, Rhode Island. I ceased to be connected with it in the fall of 1858 or the spring of 1859.

Q. 13. By whom was the business continued after that time, and how extensively was it carried on?

A. The business was continued by the Bristol Fire-Arm Company,
and afterwards the name was changed to the Burnside Fire-
259 Arm Company. In 1859 or 1860 the works were moved to
Providence, and manufactured the Burnside rifle very extensively during the war.

A. E. BURNSIDE.

Subscribed and sworn to this 13th day of May, 1876, before me—

WM. W. DOUGLAS,
U. S. Commissioner.

260 *Testimony of Witnesses produced on behalf of Defendants, taken in accordance with the 67th Rule in Equity, as amended, before William W. Douglass, U. S. Commissioner.*

United States Circuit Court, District of Connecticut. In Equity.

THE UNITED STATES RIFLE AND CARTRIDGE CO. and E. REMINGTON & SONS

vs.

THE WHITNEY ARMS COMPANY, ELI WHITNEY, President, and ELI WHITNEY.

PROVIDENCE, RHODE ISLAND, *May* 25, 1876.

Present: Benjamin F. Thurston, Esq., of counsel for defendants.

HENRY B. RENWICK, a witness of lawful age produced by and on behalf of the defendants, after being duly cautioned and sworn to tell the truth, the whole truth, and nothing but the truth in the matter in controversy herein, in answer to interrogatories propounded by B. F. THURSTON, Esq., of counsel for defendants, deposes and says as follows:

261 Ques. 1. What is your name, age, residence, and profession?

Ans. Henry B. Renwick; 58 years of age; residence, New York city; and am by profession a civil and mechanical engineer.

Ques. 2. Have you given special attention to the study of breech-loading fire-arms, and what knowledge have you acquired of the art and patents relating to the same?

Ans. I have, for the last twenty-five years or more; I had in charge the class of fire-arms while examiner in the Patent Office, some twenty-seven years ago, and have since then had occasion fre-

quently to examine all English and French patents on the subject, and many of the American patents. I am also familiar with most of the breech loaders in the market and those used by the United States, and have fired many of them, and some years ago directed some experiments in order to prove exactly how the breech block of the present Springfield arm was held in position.

Ques. 3. Have you examined a copy of the letters patent granted to Ambrose E. Burnside for an improvement in breech-loading fire-arms, dated March 25, 1856, No. 14491. And, if so, state how the gun operates at the time of the discharge of the cartridge, and by what means the breech is prevented from blowing down at the time of the discharge. And in answering this question, refer if you choose to do so, to the model filed in the Patent Office with the application of the said Burnside, and now shown you, said model marked "14491, A E. Burnside, Bristol, R. I.; improvement in breech-loading fire-arms. Pat. Mar. 25, 1856. 14491, '56."

Ans. I have examined several copies of the patent of Burnside, and also a certified, full-sized copy of the drawing attached to the
262 patent; and also the model referred to in the question, which is made in exact accordance with the specification and the drawing of the patent. The curved surface of the seat is of the form represented in figure 2 of the drawings, and this curve is properly described in the patent, and is represented in the model as in figure 2. In figure 1 of the drawings a dotted line represents this same curve, and also a portion of the curve at the end of the breech block, while the remainder of the curve at the end of the breech block is represented by another dotted line. I came to this conclusion before seeing the model yesterday. In this gun of Burnside the breech block is a compound breech block, part of which is so constructed as to slide on the other part. The breech block, as a whole, being mounted on a pivot beneath the barrel, so that it swings backwards and downwards to uncover the end of the barrel. One part of this breech block is made sliding, in order that it may act as an extractor to loosen and partially displace the shell of a discharged cartridge. As I understand the Burnside patent, it describes two modifications of the breech block, so far as the curve of its end is concerned; one being like that represented in the drawings of the patent, and the other having the curve at the end of the breech struck from the centre lower down than the axis of the barrel, so that the part of this curve which is furthest from the open end of the barrel, viz., "the projecting portion of the curved surface" would be "lower down, as at T, for instance." When the gun is constructed in exact accordance with the plan shown in the drawings, that part of the force of the explosion which was borne by the sliding part of
263 the breech block would, at the time when such sliding portion was thrown backwards by the force of the explosion, tend to lock the breech and prevent its being thrown downwards; and from measmurements that I have made, on the large sized drawing of the patent, I conclude that the curves are such that the rearwards pressure of the sliding portion of the breech block would, at the time when such pressure occurs, prevent the breech from

blowing down, although from the experience I have had on this subject, I should not like to trust to it when firing the gun from my shoulder.

When the gun is constructed in accordance with the modification described in the patent, then the breech block would not be held in place by the backwards pressure of the sliding portion thereof, and would be prevented from blowing downward by what Gen. Burnside calls the bolt H, which bolt is, in fact, a brace moving downwards and forwards when going into position to lock the breech lock.

In this gun of Burnside's the cartridge chamber is conical, the cartridge is fired by a percussion cap, does not carry its own fulminate and the hammer strikes the cap a blow in a vertical line downwards, or nearly so, as in an ordinary muzzle loading gun. As the cartridge has a hole in the end of it the cartridge chamber will become foul by repeated discharges, and a cartridge which would go home so as to strike with its butt against the front end of the sliding part of the breach when the gun was clean would not do so when the gun was dirty. Neither would the cartridge go home if slightly wrinkled or bent, and from measurements I made upon the large sized drawing I came to the conclusion that it would not be shoved home when the breech was thrown
264 into position to cover the end of the barrel. By examining the drawings it will be perceived that the cartridge extends beyond the largest diameter of the ball towards its point, and that the ball is a minnie ball, or a ball which is expanded by the force of the explosion to fit the barrel, and not a ball which is larger than the bore and decreased in diameter, slugged so as to fit the bore by the force of the explosion at the time of the explosion. Hence it follows: First, that in this Burnside gun there is no necessity of the ball or the cartridge touching the barrel prior to the explosion; and, second, that the cartridge where it projects beyond must not touch the barrel prior to the explosion, for if it did so touch, the open end of the cartridge could not enlarge so as to permit the ball to pass out in its proper shape, or probably without leaving the hollow part of the ball in the cartridge. Burnside refers to this construction when he speaks of "the soft metal cartridge case, which at the instant discharge is forced into or against these joints." I have been, perhaps, tedious on this point, but have explained this construction fully in order to show that the closing of the breech piece as a whole will not force the butt of the cartridge back against the sliding part of the breech piece which Burnside calls the "cone seat." As the cartridge chamber of this gun is conical, the backwards kick of the cartridge will be taken partly by the sliding part of the breech and partly by the part which does not slide, and wholly by the latter tending to turn it backwards and downwards on its pivot, if the butt of the cartridge does not bear against the end of the former and until it does so bear. The amount of this backward kick borne by
265 the non-sliding part of the breech will be augmented, owing to the fact that the cartridge is expanded diametrically at the moment of explosion, so as to bear forcibly against the bore which encloses it with so great force, as I know from experiment on

another kind of gun that walls of the cartridge remained in the gun after an explosion which blew out the breech block and the butt of the cartridge. In firing this gun of Burnsides, when made under that modification which is represented in the drawings, the explosion, although simultaneous with the descent of the hammer, is really not so, but several operations take place successively.

First, the hammer strikes the cap, and in so doing would knock the breech block down, if the bolt were not there, and when the bolt is there knocks the breech block down into contact with the bolt, then the cap explodes; next it drives the fire to the cartridge, and finally the cartridge explodes. When it explodes the first effort of the explosion, in case the butt of the cartridge does not bear solidly against the front of the cone seat, is to expand the cartridge and to force it backwards, in spite of the resistance produced by the expansion, against the end of the cone seat which is then forced backward so as to lock or tend to lock the breech block. An examination of the gun will show that the sliding portion of the breech block is retreating from the cartridge at the time when the breech block is closing the end of the barrel, so that even when the gun is clean and the cartridge perfect, there is, to say the least, great uncertainty that the butt of the cartridge will touch the sliding piece when the gun is loaded.

Taking all these facts into consideration, I came to the con-
266 clusion as follows, and expressed it before seeing the model or Gen. Burnside's testimony; the conclusion being that the breech block was held up by the bolt at the first moment of the explosion in all cases, and sometimes throughout the explosion, the breech block being held in place against the recoil by the pin on which it turns, and the pin or bearings which support the bolt. At times after the first moment of the explosion the breech block would be held up by the bearing of the back of the cone seat against the curved surface before referred to. This gun, in my opinion, would be entirely unsafe without the bolt to hold the breech block up at the first moment of the explosion, and probably would be unsafe if it were not present and acting during the whole of the explosion. In the modified form of the gun described in the patent the bolt and pivot do the whole work of preventing the breech block from being blown downward.

(Counsel for defendants puts in evidence the Patent Office model referred to, and the last preceding question and answer, and now in possession of the examiner in this case.)

Ques. 4. Have you examined and do you understand the letters patent to John W. Cochran, dated May 7, 1872, in suit in this case; and, if yea, please state whether the arm described in the Burnside patent is comprehended in the first claim of the said Cochran patent?

Ans. I have examined and do understand the letters patent granted to Cochran. The question whether the arm described in the Burnside patent is or is not comprehended at the first claim of the Cochran patent will depend upon the construction
267 given by the court to the claim. If the court holds that the claim is limited to a breech block which is made in one piece,

or in several pieces, no one of which has any sliding motion, and which is supported and turned upon a pin, so as to move rearwards and downwards in opening, then the arm described in the Burnside patent would not be comprehended within the claim; but if the court should decide that the first element of the claim is a breech block, "pivoted so as to swing backwards and downwards in the arc of a circle, around a fixed point," and comprehends such breech block even when it has added to it a piece which slides upon the pivoted block, then the first claim would comprehend the Burnside arm.

The second claim of the patent is evidently limited to a breech block which has no sliding motion, and excludes such a breech block as is described in the patent for the Robert's gun, even if it swung upwards and forwards to close the breech, or on an English patent prior to Robert's, in which the breech block is the same as Cochran's, and swings in the same way, except that it has an elongated hole in it, so that it can have a slight sliding motion in addition to its circular motion. This limitation is clearly expressed in the second claim, and is evidently put there for a purpose. It would seem that the same limiting words should have been put into the first claim if it had been intended that the first claim should have been limited to the same construction of breech block, as the second claim is. These words are not found in the first claim, and the disclaimer in the patent immediately preceding the claim is evidently intended to refer to the combination recited in the second claim, and not to that
268 recited in the first claim. My own opinion, taking the patent as a whole, is that the first claim was intended to cover any gun which had a breech block capable of moving downwards and backwards on a pivot, which breech block was so constructed that it did tend to move downwards and backwards upon a pin, at the moment of explosion, and was prevented from so moving by a brace other than the nose of the hammer which swung downwards and forwards in order to get under the end of the breech piece, and thus prevent it from being forced backwards and downwards. Now, the Burnside arm comes within this description, and leaving out of the question that part of the breech which slides, and considering only the other part of the breech it appears that such other part tends at the time of explosion to move backwards and downwards, and is prevented, at times in one modification, and always in the other modification, from being forced backwards and downwards by the bolt, which swings downwards and forwards to get under it. If the court, therefore, should hold that my construction of the first claim is correct, then the Burnside gun would be comprehended by the first claim of Cochran, and would, if it had been made and invented subsequent to Cochran's patent, have been an infringement of that first claim.

Ques. 5. State whether the breech piece shown in the Cochran patent was or was not well known in the art of making fire-arms before the date of the said Cochran patent?

Ans. It was well known. Cochran himself refers to it as old in his patent. It is represented in the patent to Perry, of November,

1854; also, in the patent to Lee, of 1858; also, in the French
269 patent of Flobert, of November, 1855; also, in another French patent, of the date of which I have no memorandum with me; also, in the patent to Geiger, of January, 1863; and in the patent to Laidley & Emery, of May 15, 1856.

HENRY B. RENWICK.

Subscribed and sworn to, this 25th day of May, 1876, before me—
WM. W. DOUGLAS,
U. S. Commissioner.

270 THE UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file wrapper, contents, and drawing in the matter of the rejected application of John W. Cochran, filed January 11, 1859, for fire-arms.

In testimony whereof, I Ellis Spear, Acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed, this third day of June, in the year of our Lord one thousand eight hundred and seventy-five, and of the Independence of the United States the ninety-ninth.

[L. S.] ELLIS SPEAR,
Acting Commissioner.

271 To the Commissioner of Patents:

The petition of John W. Cochran, of the city, county, and State of New York, respectfully represents—

That your petitioner has invented certain new and useful improvements in breech-loading fire-arms, which he verily believes have not been known or used prior to the invention thereof by your petitioner. He therefore prays that letters patent of the United States may be granted to him therefor, vesting in him and his legal representatives the exclusive right to the same upon the terms and conditions expressed in the act of Congress in that case made and provided, he having paid thirty dollars into the Treasury and complied with the other provisions of the said act.

10th January, 1859.

JOHN W. COCHRAN.

272 To all whom it may concern:

Be it known that I, John W. Cochran, of the city of New York, in the State of New York, have invented certain new and useful improvements in breech-loading fire-arms and cannon; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters and marks thereon.

Of the drawings forming part of this specification, Fig. 1 is a longitudinal section of a fire-arm, with my improvements, Fig. 2 being a top or plan view of the same, and Fig. 3 a side view, the barrel being shown in section.

In each of these figures like letters indicate like parts. A marks the barrel; B the excentric clutch or stop to the breech; C the excentric lever or cam for holding and forcing the cluch or stop B firmly against the end of the barrel, thus making a tight joint; D the charge placed in the breech of the barrel.

The stop or excentric clutch is firmly pressed against the end of the barrel by the cam lever C, which is held at the back end by a spring dog, E, ready for firing.

It will be seen that the greater the strain or recoil against the stop clutch the firmer it is held against the end of the barrel by the excentric lever or cam, as the stop piece cannot pass the centre of the excentric backwards nor downwards, but must tend to a slightly forward motion in a straight line with the axis of the barrel, the elongated hole in the heel of the stop clutch, through which the centre pin A passes and holds the stop clutch, allowing this forward motion, and thus it will be seen that the lever C and pin V hold
273 the stop piece firmly against the end of the barrel, while the centre pin A prevents it from rising or falling, and by these means a perfect joint is made, with nothing but metal in contact with metal.

When it is required to open the breech in order to remove the blank cartridge, if metallic cartridges be used, to reload, lever C′ is tripped by disengaging the spring dog E, and then the parts will be in the position shown by the dotted lines in Fig. 1, the stop clutch having been turned on the centre pin until the bore of the barrel is completely exposed and ready to receive the load.

The charge having been introduced, the clutch or stop is placed up against the end of the barrel, the lever brought to its firm position, and the joint being again perfect, the piece is ready for discharge.

The lever *c* may be attached to the clutch or stop B by a link, C′, as shown in Fig. 1. This arrangement provides for the movement together of these two parts instead of moving each by hand separately. Other convenient connections of the clutch and lever may be made.

In the front face or surface of the clutch is a recess sufficiently deep to allow the flanged end of the metallic cartridge to enter freely, so that when the clutch is pressed firmly forward to make a perfect joint it will not press in any way upon the flanged end where it contains the igniting powder, or in any possible manner cause premature explosion. The end of the cartridge will be entirely loose in the recess and in the chamber of the barrel. This recess in the face of the clutch also serves another useful purpose, namely, to
274 allow of or facilitate the withdrawal of the discharged cartridge. In firing, the flanged end will be forced back into the recess and held, so that when the clutch is turned down the blank cartridge will be drawn out of the chamber and be freed therefrom, as the cartridge cannot follow in the circular line in which the clutch is moved.

I also use a catch or dog to insure the detaching of the cartridge from the chamber attached to the clutch within the recess. This

catch *i* will pass under the flange *c''* of the cartridge and upon the downward or opening movement of the clutch drawing out the cartridge.

The fire for the discharge may be communicated through the head of the clutch either by means of a cap and nipple, as shown by Figs. 1 and 2 of the drawing at *e'*, or the point of the hammer may pass through a hole in the head, and thus strike the flange of the cartridge at the point where the percussion powder lies for igniting the charge.

I make my cartridges of wire cloth or thin metal sheets finely perforated, and, to make them waterproof I dip them in a solution of India rubber or gutta-percha, which forms a thin coating both on the out and in side. They are then exposed to a proper degree of heat in order to vulcanize the rubber coating. I thus make a perfectly water-tight coating, and at the same time allow the fire to pass through any part of the cartridge, either on the end or sides.

A great advantage will be gained also by such cartridges when the charge is exploded, as the force will pass through the holes, and the pressure will be equal on the inside and outside of the
275 cartridge. This cartridge will pass freely out of the barrel and not remain in the chamber of the gun, as will be the case with paper or other cartridges, by their being forced against the interior surface of the barrel and then held by the pressure on the inside. A serious objection to all breech-loading fire-arms is the loading of the barrel from the draw of the ball. I obviate this by making the ball the exact size of the bore and by uniting or attaching the cartridge to the ball by a soft wire, copper being preferable, so as to shut off the windage and draw into the rifle grooves. This plan I find most effectually gets over the leading and discharges the ball equally well, if not better, than to have the lead pass through the grooves. The rubber coating also prevents the lead from adhering to the barrel.

Having thus set out the construction and operation of my invention, what I claim as new and desire to secure by letters patent is—

1st. The excentric clutch or stop B, constructed and susceptible of being operated as herein set forth.

2d. I claim the recess in the face of the clutch for receiving the flanged end of the cartridge, as herein described.

3d. I claim, in combination with the recess in the clutch, the catch or dog *i* for seizing the flange of the cartridge, as described.

4th. I claim the combination of the lever C, or its equivalent, and the clutch B, with the barrel, as herein set forth.

J. W. COCHRAN.

Witnesses—
JOHN HILLEINGHAM.
ANN JEWELL.

276 CITY AND COUNTY OF WASHINGTON, } ss:
District of Columbia, }

On this 10th day of January, 1859, before me, the subscriber, a

justice of the peace, personally appeared the within-named John W. Cochran, and made solemn oath that he verily believes himself to be the original and first inventor of the within described improvements in breech-loading fire-arms; that he does not know or believe the same was ever before known or used, and that he is a citizen of the United States. JOHN HOLLINGSHEAD, *J. P.*

I hereby constitute Thomas T. Everett, of the city of Washington, my attorney in the matter of an application for a patent for improvements on breech-loading fire-arms, bearing date with this instrument, and authorize my said attorney to alter and amend the specifications and claims of the same, and in general to do all things in relation to the application which I have the right to do under the laws and under the rules of the Patent Office.

10th January, 1859. J. W. COCHRAN.

277 U. S. PATENT OFFICE,
WASHINGTON, *Feb. 8th*, '59.

SIR: Your claims to letters patent for improvement in fire-arms have been examined, and rejected for want of novelty in the devices. For the 1st and 4th claims, see I. H. Sear's rejected and withdrawn case of Dec. 10, 1855, and Thos. Lee's patent of April 27, 1858; and for the 2d and 3d claims, see G. W. Morse's patent of Oct. 28, 1856.

Respectfully, &c., ——— ———.

J. W. Cochran,
Care of T. T. Everett, Washington, D. C.

To the Commissioner of Patents:

SIR: I hereby withdraw my application for a patent for fire-arms, now in your office, and request that twenty dollars may be refunded to me, agreeably to an act of Congress in such cases made and provided.

Washington, Feb. 20, 1860. J. W. COCHRAN.

278 *No.*—. *Taylor.* 95.

G.

John W. Cochran, of New York, county of ——, State of ——.

Fire-arms.

Rec'd, January 11, 1859.
Petition, " " "
Affidavit, " " "
Specification, " " "
2 Drawing, " " "
Model, " " "
1 Cert. dep., $30, January 11, 1859.

Cash, Cash to applicant.
Examined.
2 Issue, February 20, 1860.
4 Patented ——, 185–.
Recorded, vol. —, page —.

Howe's name, as assignee, was erroneously inserted on this file. His interest was only in application to be made after May, 1859. Sec. 45, p. 98.

F. T. T. EVERETT,
Washington, D. C.

Fire-arms.
Rejected February 8th, 1859.
Specification and one drg. to me Nov. 7, 1859.
T. T. EVERETT.

279 THE UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files in this office of the file wrapper and contents in the matter of the letters patent granted John W. Cochran, dated May 7th, 1872, No. 126,446, for breech-loading guns.

In testimony whereof, I, Ellis Spear, Acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed, this second day of June, in the year of our Lord one thousand eight hundred and seventy-five, and of the Independence of the United States the ninety-ninth.

[L. S.] ELLIS SPEAR,
Acting Commissioner.

280 *Petition.*

To the Commissioner of Patents:

The petition of John W. Cochran, of New York, in the county of New York, and State of New York, respectfully represents:

That your petitioner has invented certain new and useful improvements in breech-loading fire-arms, which he verily believes has not been known or used prior to the invention thereof by your petitioner; he therefore prays that letters patent of the United States may be granted to him therefor, vesting in him and his legal representatives the exclusive right to the same, upon the terms and conditions expressed in the acts of Congress in that case made and provided, having paid fifteen dollars into the Treasury, and complied with the other provisions of said acts.

And he further prays that W. C. Dodge and H. B. Munn, of the firm of Dodge & Munn, of the city of Washington, D. C., or their associates, may be recognized as his true and lawful attorneys, to prosecute this application at the Patent Office, to alter and amend the specification, to sign the drawings and alter the same, to receive and transmit the patent when granted, and generally to do all other acts and things in the premises which he might if personally present.

J. W. COCHRAN.

J. W. C.
March 28, 1868.

281 *Oath.*

STATE, CITY, AND COUNTY OF NEW YORK, *ss:*

On this 28th day of March, A. D. 1868, before me, the subscriber, a notary public, personally appeared the within-named John W. Cochran, and made solemn oath that he verily believes himself to be the original and first inventor of the improvements in breech-loading fire-arms herein described, and that he does not know or believe the same was ever known or used; and that he is a citizen of the United States.

JOHN BISSELL,
Notary Public.

282 *Specification.*

To all whom it may concern:

Be it known that I, John W. Cochran, of New York, in the county of New York and State of New York, have invented certain new and useful improvements in breech-loading guns; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to make and use my invention, I will proceed to describe it.

My invention consists in certain novel features in the construction of breech-loading fire-arms whereby the breech may be readily opened and closed for entering the cartridge and removing the shell after the arm is fired, and, more especially, it relates to the devices or means for withdrawing the shell of the cartridge from the chamber of the barrel by the act of opening the breech, as hereinafter more fully explained. (Erase and insert Amendment B, rec'd & filed Jan. 3d, 1870.)

Fig. 1 is a longitudinal vertical section with the breech closed.

Fig. 2 is a similar view, with a modification of the cartridge ejector.

Fig. 3 is a longitudinal vertical section with the breech partially opened to represent the operation of withdrawing the shell.

283 Fig. 4 is a top plan view of the breech block detached.

A represents the barrel, which is constructed in the usual style for this class of arms, the rear end of the barrel being left entirely open. D represents the stock, made of any suitable style, to adapt it to the working parts of the arm.

In the rear of the barrel I locate a breech block, B, of the form represented in the drawings. This breech block I hinge or pivot, at its front lower portion, on a bolt, *e*, as represented in Figs. 1, 2, and 3, it being of suitable size to entirely cover and close the breech end of the barrel when turned up in the position represented in Figs. 1 and 2. In the drawings I have represented the front face of this breech block B as having in it a recess of sufficient size to fit over the rear end and flange of the cartridge *f* when the breech is closed; but it is obvious that, instead of having this recess in the face of the breech block, it may be omitted, and the rear of the chamber be

counterbored to permit the flange of the cartridge to enter and rest therein, the result being the same in either case.

For the purpose of securely locking or bracing this breech block B in place when closed, so as to withstand the pressure of the gases evolved in the discharge of the arm, I pivot a lever, C, in the under part of the stock D, in rear of the breech block, as represented in Fig. 1, this lever C being pivoted on a bolt, D, and having its front end formed substantially as shown, so as to form a strong brace, resting against the rear side of the breech block, and thus brace it firmly in place, as clearly shown in Figs. 1 and 2. This lever extends back a suitable distance and terminates in a handle, *h*, by which it can be readily operated.

284 As will be seen by Fig. 4, the breech block is so constructed that that portion which rests against the front end of the lever C forms a central longitudinal projection much narrower than the front portion, which covers the rear end of the barrel. This form is adopted simply to save metal and weight, and because, by thus forming it, a less space is required for it to rest in when turned back.

The device for withdrawing the cartridge shell consists of a small spring hook, *n*, fitted into a recess of proper size in the front side or face of the breech block B, as shown in Figs. 1 and 3, this spring *n* having its front end formed into a small hook to pass under and in front of the flange of the cartridge shell when the breech is closed, as represented in Fig. 1. To enable this hook *n* to slip under the flange of the cartridge in case the latter has been shoved entirely into the chamber, while the breech block remained thrown back, the upper front point or portion of the hook should be slightly beveled, as represented in Fig. 3, and there should be a small recess made in the rear end of the barrel, at its lower side, for this projecting point of the hook to enter as the breech is closed, this recess being shown in Fig. 3, at *u*. With the breech block B and the ejector *n* thus constructed and arranged, it will be seen that, when a cartridge, *f*, is shoved into the chamber, and the breech then closed, the hook on the end of the ejector *n* will be forced under the flange and engage with the front face of said flange, as represented in Fig. 1, and that when the breech block B is swung back the hook on the front end of the ejector *n* will draw the cartridge shell out of the bore as it swings back with the breech to a point where, as it moves

285 in the arc of a circle, of which the pivot *e* is the center, it passes below the horizontal plane in which the flange of the shell moves, when it will be released from the shell, leaving the latter sticking part way out of the rear end of the barrel, as clearly represented in Fig. 3. Or, if the breech block be thrown suddenly back, the momentum imparted to the shell may be sufficient to throw it entirely out of the chamber.

As, however, springs are considered objectionable, especially in military arms, subjected necessarily to rough treatment, it is obvious that instead of the spring *n* the ejector may consist of a solid spur or stud *o*, formed on the lower front side of the breech block B, as represented in Fig. 2, this stud *o*, operating in the same manner, to withdraw the shell, as the spring ejector *n* would. If, however, this

form be adopted, care must be taken not to shove the cartridge entirely in to its place in the chamber before commencing to close the breech block; because if it were then it is obvious that the stud *o* would strike against the rear end of the cartridge when the breech was closed, and thus prevent the breech block from closing perfectly, and at the same time endanger the exploding of the cartridge, especially if rim-primed cartridges were used. When the form of ejector is used the shell should be shoved partially in and the breech block B then turned up, the stud *o* passing under the flange, and the block B at the same time shoving the cartridge into its place, with the stud *o* in front of the flange, ready for withdrawing the shell, when the breech is opened.

It is obvious that either centre or rim-primed cartridges may be used in such a gun. If the arm be intended for using the lat-
286 ter only, then a firing pin will be located in the breech block B, in the position represented by *t*, of Fig. 4, so as to strike the flange of the cartridge. If central-primed cartridges are to be used then the firing pin will be located as represented by the dotted lines in Fig. 2, so as to strike the centre of the rear end of the cartridge.

If desired a link or rod *l* may be used to connect the lever C with an arm or projection formed on the lower extremity of the breech block, as represented in red in Fig. 1, for the purpose of opening and closing the breech by the movements of the lever C. If this be done there must be sufficient lost motion in the link *l* to permit the front end of the lever C to pass from behind the block B, and thus unlock the latter before the link *l* operates on the breech block to throw it open. Whether this link *l* be used or not the upper rear face of the block B should be formed on the arc of a circle, of which *e* is the centre, or nearly so; and the front arm or the lever C be so curved or formed as to permit the breech block to swing down in front of it as the latter is thrown up.

By these means I construct an arm that is simple, sufficient, and durable, and which, by the act of opening the breech, withdraws the shell in whole or in part, without the use of any other devices or parts than those attached to and forming a part of the breech block.

(Here insert amendment C, rec'd and filed Jan. 3d, 1870.)

Having thus described my invention, what I claim is:

287 1. A breech-loading gun, in which a hinged breech block is used, and which has attached to and carried with it an ejection for withdrawing the cartridge shell, substantially as herein described.

The combination of the hinged breech block B, and lever C, when said parts are constructed and arranged for operation in a breech-loading gun, substantially as set forth.

I claim the combination and arrangement, in a breech-loading gun, of the breech block B, lever C, and link *l*, substantially as and for the purpose set forth.

Erase and insert amendment rec'd & filed Dec. 20th, 1869.

J. W. COCHRAN.

Witnesses:
JOHN BISSELL.
W. C. DODGE.

(Endorsed:) Application of J. W. Cochran, of New York, in the State of New York, for breech-loading gun. (Patent Office, May 6th, 1868.)

288 U. S. PATENT OFFICE,
WASHINGTON, D. C., *October 13th*, 1868.

John W. Cochran, care of Dodge & Munn, present.

SIR: Please find below the decision of the examiner in charge in the matter of your application for patent for breech-loading arms, filed May 6, 1868.

Very respectfully, COMMISSIONER.

EXAMINER'S ROOM, No. 155.

The application above referred to has been examined. It is a renewal of an application filed January 11th, 1859. Rejected February 8th, 1859, and withdrawn February 20th, 1860. The same model is used in both cases.

No effort to obtain a patent appears to have been made between the date of the first rejection (February 8th, 1859), and the date of the present application, a period of over nine years.

A patent is refused on the ground of abandonment.

CHAS. EVERETT, *Examiner.*

(Endorsed:) P. O., J. W. Cochran. Rejected October 13th, 1868.

289 To the Commissioner of Patents:

SIR: In reply to your communicaton of the 13th inst. rejecting the application of John W. Cochran; for improvements in breech-loading arms, on the ground of abandonment, as he had made a prior application some years before for a patent for the same invention, and had used the same model, &c., and had been rejected and had subsequently withdrawn the same, &c., we respectfully submit, that the rejection then made did not show any fair anticipation of his invention, and that he was induced to withdraw his application under a mistaken apprehension of his right, and that it is now proper for him, under the rulings of the office and the decision of the courts to renew the same, and that the doctrine of abandonment does not apply to his case.

Judge Merrick, in the case of Hayden, *ex parte*, as recorded in vol. 3, page 356 of appeal cases from the office, says:

"Judge Grier in the circuit court of Penn., in the case of Crandall & Rich *vs.* Lippincott & Barr, and Judge Nelson on the New York circuit, in Taylor *vs.* Wilder, both held that where a party by a mistaken rejection of his claim had been induced to withdraw his application and get a return of $20 as the law provided, and acting purely under this mistake of his rights, occasioned by the error of the office, suffered his invention to go into public use for several years, and afterwards, on discovering his mistake, applied, and obtained a patent, he had not, by a withdrawal under such circum-

stances, abandoned his right, but that his second application
290 related back by operation of law to the date of his first application, so as to cut away the forfeiture which otherwise would have happened by the long intermediate public use."

See also Law's Digest, page 147, secs. 37, 38, and 40; p. 78, sec. 17; p. 94, secs. 17, 23, 24, 25, 26, and 27.

See the case of Thaddeus Fairbanks, who applied for a patent in 1846. His application was rejected, he withdrew his fee, and in 1856, ten years, he renewed his original application and a patent was allowed.

Again, Joel S. Shelby and Joseph Stauffer made an application for patent on harvester Dec. 3d, 1849, which was rejected February 18th, 1850; it was withdrawn April 10th, 1850; afterwards refiled in August, 1856, and patent granted September 2d, 1856.

Other cases might be cited showing similar action by the office, but these, it is believed, will be sufficient to show that the ground of rejection given in the official communication in the case of Mr. Cochran is not in accordance with the decision of the courts or the practice of the office in like cases, and fully warrant us in requesting a re-examination of the point raised and an allowance of the application if no references can be given.

Respectfully, DODGE & MUNN,
Attorneys for Cochran.

(Endorsed:) Received and filed October 15th, 1868. Argument, C. E. John W. Cochran. Breech-loading arms. Everett, Ex.

291 To the Commissioner of Patents:

SIR: In the matter of the application of J. Cochran, rejected on the ground of delay or abandonment, we call attention to the case of John A. Cumming's patent for dental rubber plate, patented June 7th, 1864.

This case was filed April 12th, 1854, which was rejected last in February, 1856.

It was refiled March 25th, 1864, and the office very properly allowed the patent as a simple act of justice to the inventor who had been improperly rejected. See office letter in file of 1864. This long delay was made a special point in the warmly contested litigation of the patent subsequently, but it was held not to affect the rights and the applicant. See decision of Judge Clifford, of the Supreme Court, in that case.

Respectfully, DODGE & MUNN, *Attorneys.*

(Endorsed:) Additional argument of att'y. Filed Oct. 20th, 1868.

292 U. S. PATENT OFFICE,
WASHINGTON, D. C., *October 22d*, 1868.

John W. Cochran, care of Dodge & Munn, Washington, D. C.

SIR: Please find below the communication of the examiner in charge in the matter of your application for patent for breech-loading arms, filed May 6th, 1868.

Very respectfully, COMMISSIONER.

293 EXAMINER'S ROOM, No. 155.

In the matter of the application above referred to, after due consideration of the argument of the applicant's attorney, the application for patent is again rejected for the reason before given, viz, that the alleged invention has been abandoned by the applicant.

Many cases might be cited in support of the above position, but the decision of Judge Merrick, D. C., 1860, Law's Digest, p. 153, sec. 7, appears to meet all the circumstances of the present case and to be conclusive upon the point. It reads as follows:

"The withdrawal of an application and receiving the fee returnable thereon, and allowing the case then to stand a number of years before further action, will be considered an abandonment of the invention. A subsequent application for a patent for the same invention will be refused on the ground of such abandonment. Dederick, *Ex parte*, M. S. App. Cas."

The present action of the examiner is based exclusively upon the ground of abandonment, and not upon the merits of the case in other particulars.

CHAS. EVERETT, *Examiner*.

(Endorsed:) P. O., John W. Cochran. 2d rejection, October 22, 1868.

Cancelled and not sent.

294 U. S. PATENT OFFICE,
WASHINGTON, D. C., *December 18th*, 1868.

John W. Cochran, care of Dodge & Munn, present.

SIR: Please find below the communication of the examiner in charge in the matter of your application for patent for breech-loader.

Filed Oct. 24th, 1868.

Very respectfully, COMMISSIONER.

EXAMINER'S ROOM, No. 155.

In the matter of the application above referred to the following additional references are given in support of position taken by the primary examiner in rejecting this application on the ground of abandonment, viz: The patents of—

Thos. Lee, Nov'r 19th, 1861.
C. C. Coleman, May 13th, 1862.
B. F. Joslyn, June 20th, 1855.
W. H. Robertson, March 13th, 1866.
Isaac Bradley, Aug't 7th, 1866.
W. H. and G. W. Miller, May 14th, 1867.
Silas Crispin, Feb'y 5th, 1867.

295 John Broughton, April 14th, 1868.
Joseph Rider, Dec'r 8th, 1863.
Albert M. White, April 18th, 1865.
E. S. Allin, Sept. 19th, 1865.
Cyprian Chabot, April 4th, 1865.
Do., Sept'r 5th, 1865.
W. H. Elliott, May 23d, 1865.
Do., April 18th, 1865.

E. S. Piper, Dec'r 5th, 1865.
Isaac Sutvan, March 14th, 1865.
James Stillman, Oct. 17th, 1865.
W. H. Walcott, June 13th, 1865.
H. Berdan, Feb'y 27th, 1866.
Isaac M. Millbank, June 12th, 1866.
E. B. Stoddard, Nov'r 6th, 1866.
W. H. Walcott, Nov'r 27th, 1866.
W. H. and G. W. Miller, Dec'r 26th, 1865.
J. and G. H. Weedham, May 21st, 1867.
H. Berdan, Jan'y 9th, 1866.
Barton Howard, Feb'y 25th, 1868.
Joseph Rider, Feb'y 11th, 1868.

All of the above-mentioned patents show the devices now claimed or their equivalents, and indicate that the alleged invention has been before the public during the whole period which has elapsed since the original application was presented.

CHAS. EVERETT, *Exam'r.*

296 U. S. PATENT OFFICE,
WASHINGTON, D. C., *January 6th*, 1869.

John W. Cochran, care of Dodge & Munn, Washington, D. C.:

Please find below a communication from the examiner in relation to your application for patent for breech-loading fire-arms, filed May 6th, 1868.

Very respectfully, COMMISSIONER.

EXAMINER'S ROOM, No. 155.

This case having been remanded to the examiner by the examiners-in-chief, with instructions to furnish the applicant with references, if in existence, which bear upon the fact of public use of the parts claimed by others more than two years prior to the filing of the present application, the following patents, each of which shows the devices now claimed by the applicant, or their equivalents, are therefore given as references in support of the position taken by the primary examiner in rejecting the application on the ground of abandonment, viz:

Thomas Lee, November 19th, 1861.
C. C. Coleman, May 13th, 1862.
297 B. F. Joslyn, June 20th, 1865.
W. H. Robertson, March 13th, 1866.
Joseph Rider, December 8th, 1863.
Albert M. White, April 18th, 1865.
E. S. Allen, September 19th, 1865.
Cyprian Chabot, April 4th, 1865.
Cyprian Chabot, September 5th, 1865.
W. H. Elliott, May 23d, 1865.
W. H. Elliott, April 18th, 1865.
E. S. Piper, December 5th, 1865.
Isaac Sutvan, March 14th, 1865.
James Stillman, October 17th, 1865.

W. H. Walcott, June 13th, 1865.
H. Berdan, February 27th, 1866.
W. H. & G. W. Miller, December 26th, 1865.
H. Berdan, January 9th, 1866.

CHAS. EVERETT, *Examiner.*

(Endorsed:) P. O., J. W. Cochran. Add'l references, Jan'y 6th, 1869.

298 To the Commissioner of Patents.

SIR: In the matter of J. W. Cochran's application for a patent on his improvement in breech-loading guns, we are in receipt of a letter, dated January 6th, 1868, from the examiner, stating that the board of examiners-in-chief, to whom the case was appealed October 24th, 1868, had remanded the case to him with instruction to furnish the applicant with a list of references, of which the letter contains some eighteen, all of a date years subsequent to the filing of Cochran's original application.

Without stopping to inquire at this time as to the authority of the board to remand cases to the examiners, instead of deciding the issue appealed, or its right to instruct the examiners what to do, or of the propriety of an examiner's interfering with cases after they are appealed from his decision to a higher tribunal, we would simply remark that the references given have no bearing on the question. It is not pretended that they anticipate the invention by Cochran, as his application was filed in the office two and a half years prior to the first of these patents. The idea that the existence in a drawing or the description in a specification subsequently filed of any of the features of Cochran's invention, or of an equivalent device, can be construed as evidence of "public use," or in such "proof of abandonment" as required by the statute, is too ridiculously absurd to admit of serious argument.

Presuming that the board desired these references for its
299 instruction, we do not feel called upon for further reply, but have to repeat our request frequently made, that the case may now be decided by the board on the issue made by the examiner, and on which we were forced to appeal.

The case was filed more than nine months ago, and was appealed two and a half months since, and having been kept back under one pretense and another until the present time, we think we have a right to insist that it shall be no longer delayed.

Respectfully, &c.,

DODGE & MUNN,
Attorneys for Cochran.

January 11th, 1869.

(Endorsed:) J. W. Cochran, breech-loading gun. Letter from att'ys. Rec'd and filed Jan'y 11th, 1869.

300 To the Commissioner of Patents.

SIR: I submit herewith an amendment in my application filed May 6th, 1868, in order to conform the case to the decision of the board of January 20th, 1869, and confirmed by your honor June

11th, 1869, said decisions having rejected the first and second claims, and allowed the third. I ask that the amendment may be entered, and the case proceeded with accordingly.

Respectfully, &c,

JOHN W. COCHRAN,
By DODGE & MUNN, *Attorneys.*

(Endorsed:) J. W. Cochran, breech-loading gun. Request to enter amendment. Cancelled amendment enclosed.

301 To the Commissioner of Patents.

SIR: I hereby amend my specification, filed May 6, 1868, by cancelling all after the word "fired" in the 6th line, to the end of line 11, of page 1.
I also amend by cancelling the first and second claims.

Erase by amendment filed June 30, 1869.

J. W. COCHRAN,
By DODGE & MUNN, *Attorneys.*

This amendment may be filed and considered by the primary examiner.

SAM. S. FISHER,
June 17, 1869. *Commissioner.*

(Endorsed:) J. W. Cochran, breech-loading gun. Amendment filed June 17, 1869.

302 To the Commissioner of Patents.

SIR: In the matter of my application for a patent on my breech-loading gun, filed May 8th, 1868, I hereby request a suspension of action by the examiner until further notice.

J. W. COCHRAN,
By DODGE & MUNN,
June 29, 1869. *Attorneys.*

(Endorsed:) J. W. Cochran, breech-loading gun. Request to suspend action.

303 To the Commissioner of Patents.

SIR: I hereby amend my specification, filed May 6th, 1868, for a breech-loading gun by cancelling the amendment filed June 17th, 1869, thereby restoring the first and second clauses of claim.

J. W. COCHRAN,
By DODGE & MUNN,
His Attorneys.

(Endorsed:) J. W. Cochran, breech-loading gun. Amendment. Filed June 30, 1869.

I, John W. Cochran, of the city, county, and State of New York, being duly sworn, do depose and say: That in or during the year 1859 I invented a breech-loading fire-arm, which was at that time, as I believed and still believe to have been, entirely new and original in its construction; and further, that I in the same year applied to the Government of the United States of America for letters patent

for my invention; and further, that my application of such letters patent was returned to me rejected; and further, that I was led to believe, from remarks accompanying such rejection received from the Patent Office at Washington, that my invention was patentable;
304 and further, that being then, as I have been since and am now, in straitened circumstances, I withdrew the amount necessarily deposited at the time of making my application; and further, that, owing to such circumstances, had I even had assurance of the originality of my invention and of my being fully entitled to letters patent for the same, that I could not have availed myself of such assurance or knowledge; and further, that even supposing that I had been fully able to make another application for letters patent for my invention, ill health and absence from the country would have debarred me from taking advantage of the information, and that although I have made many inventions since that time, for which letters patent have been granted me, I have only been able to obtain them through the kindness and assistance of others; and further, that in the application I have now made I have only been able to make it by interesting other parties, who furnish the means necessary to carry through or properly present such application; and further, that the affidavit herewith appended furnishes additional proof, if any is needed, of the truth of this affidavit.

J. W. COCHRAN.

Sworn before me this 15th day of July, 1869. Witness my hand and official seal.

[L. S.] JOHN BISSELL,
Notary Public.

(Endorsed:) Affidavit of John W. Cochran.

305 I, Richard L. Baldwin, of the town of Milford, county of New Haven, and State of Connecticut, being duly sworn, do depose and say: That I have known John W. Cochran for several years, and that the facts set forth in his affidavit are true, to the best of my knowledge and belief; and further, that he applied to me for assistance to enable him to make proper application to the Government of the United States for letters patent for a breech-loading fire-arm invented and constructed by him in the year 1859, and for which he at that time applied for letters patent, which were denied him and his application rejected, and that believing him justly entitled to his patent, which from no fault of his was rejected, and also that equity and justice demanded that his new application be granted, have aided and assisted him in the furtherance of that object.

RICH'D BALDWIN.

Sworn before me, this 15th day of July, 1869. Witness my hand and official seal.

[L. S.] JOHN BISSELL,
Notary Public.

(Endorsed:) Affidavit of R. L. Baldwin.

306 U. S. PATENT OFFICE,
WASHINGTON, D. C., *December 15th*, 1866.

John W. Cochran, care of Dodge & Munn, Washington D. C.

SIR: Please find below the communication of the examiner in charge in the matter of your application for patent for "breech-loading guns," filed May 6th, 1868.

Very respectfully, COMMISSIONER.

EXAMINER'S ROOM, No. 155.

The application above referred to has been examined, and is rejected for want of novelty at the date of the original application, filed January 11th, 1859.

For the first claim, reference is made to Desnyau's improvement on the "Robert" arm, reported by Baron Ségnier, and approved November 20th, 1839, and published in Bulletin de la Société d'Encouragement pour l'Industrie Nationale, Paris, 1840, vol. 39, page 123, plate 792.

For the second and third claims, reference is made to the patent of A. D. Perry, November 28th, 1854; to the patent of S. W. Marsh, December 6th, 1859; to the rejected application of A. D. Perry, withdrawn February 6th, 1858, and to the English patent of W. E. Newton (a communication), No. 1237, of 1854.

CHAS. EVERETT, *Examiner.*

(Endorsed:) P. O., John W. Cochran. Rejection Dec. 15th, 1869.

307 To the Commissioner of Patents.

SIR: New references having been given in the letter of December 15th, 1869, in the matter of Cochran's application for a patent on his improvements in breech-loading gun, we submit herewith an amendment, as provided for by the rules, and request a re-examination.

Neither of the claims now presented are met by the references given; and as it is to be presumed that the list of references has been exhausted, we respectfully ask that the case may be passed without further delay; or, if it cannot be passed, that it may be at once rejected, in order that further proceedings may be had without unnecessary delay.

Respectfully, &c.,

DODGE & MUNN,
Attorneys for J. W. Cochran.

(Endorsed:) J. W. Cochran. Breech-loading gun. Attorney's letter. Letter from attorney.

308 To the Commissioner of Patents.

SIR: I hereby amend my specification, filed May 8th, 1868, by cancelling the original claims, and substituting therefor the following:

"The combination, in a breech-loading gun, of a breech block so pivoted as to swing backward and downward in opening the breech, and a brace or support pivoted to the frame, in rear of said block,

substantially as described. (Erase and insert amendment, filed March 23, 1872.)

"I claim the combination in a breech-loading gun of the swinging breech block above described, and an ejector so arranged that the opening of the breech shall withdraw or start the cartridge shell, substantially as set forth." (Erase and insert amendment B, filed Dec. 5th, '70.)

J. W. COCHRAN,
By DODGE & MUNN, *Attorneys.*

(Endorsed:) J. W. Cochran. Breech-loading gun. Amendment A. Rec'd and filed Dec. 20th, 1869. R. C. G.

309 U. S. PATENT OFFICE,
WASHINGTON, D. C., *December 24th*, 1869.

John W. Cochran, care of Dodge & Munn, Washington, D. C.:

Please find below a communication from the examiner-in-charge in the matter of your application for patent for breech-loading guns, filed May 6th, 1868.

Very respectfully, COMMISSIONER.

EXAMINER'S ROOM, No. 155.

In the matter above referred to, the claims as amended having been examined, a new drawing is required, as the one filed with this application does not agree with the model.

310 If a proper disclaimer is filed to the parts, separately considered, which in combination constitute the first claim, that claim will stand in a more favorable position before the office.

The second claim is again rejected upon the reference before given, all the parts of the combination claimed which co-operate in producing the effect desired, viz., the withdrawal or starting of the cartridge shell, being fully described and shown in the reference, and being close equivalents, producing the same result.

The declaration of invention requires modification.

CHAS. EVERETT, *Examiner.*

(Endorsed:) P. O., John W. Cochran. Rejection, Dec. 24th, '69.

311 To the Commissioner of Patents.

SIR: We file herewith a new drawing and an amendment in the case of J. W. Cochran's gun, as called for by the office letter of December 24th, 1869; and having thus complied with all the requirements of the examiner, and he having verbally expressed his satisfaction with and approval of the same, we request that the case may be decided by a positive rejection or allowance of the amended claims, in order that, if necessary, an appeal may be taken without further or unnecessary delay. No reference is now given to the first claim, and yet it is neither allowed nor rejected. The reference given to the second claim is not, in our opinion, any answer to the claim. We therefore stand on the claims as they are, and ask that they be either allowed or rejected.

Respectfully, &c., DODGE & MUNN,
Attorneys for Cochran.

(Endorsed:) J. W. Cochran. Breech-loading gun. Letter from att'ys requesting decisive action.

312 To the Commissioner of Patents.

SIR: I hereby substitute a new drawing for the one previously filed, as required by the office letter of December 24th, 1869.

I also amend my specification by cancelling the paragraph describing the nature of the invention, and substitute therefor the following:

"My invention consists in a novel construction and arrangement of a swinging breech piece, with a brace pivoted to the frame in rear of the breech piece for the purpose of holding the same securely in position while the gun is being fired. It also further consists in combining with the breech piece an ejector, for starting or removing the cartridge shell as the breech is opened." (Amendment B, rec'd & filed Jan. 3d, 1870.)

I further amend by inserting at the end of line 8 on page 8 the following:

"I am aware that a gun has heretofore been made having a breech piece arranged similar to mine, and therefore I do not claim such broadly; but." (Amendment C, rec'd and filed Jan. 3, 1870. Erase & insert amendment A, filed Dec. 5, '70.)

J. W. COCHRAN,
By MUNN & DODGE, *Attorneys.*

(Endorsed:) J. W. Cochran. Breech-loading gun. Amendment. Amendments B & C. Rec'd and filed Jan. 2d, 1870. R. C. G.

313 U. S. PATENT OFFICE,
WASHINGTON, D. C., *January 4th*, 1870.

J. W. Cochran, care of Dodge & Munn, Washington, D. C.

SIR: Please find below a communication from the examiner in relation to your application for patent for breech-loading gun, filed May 6th, 1868.

Very respectfully, COMMISSIONER.

EXAMINER'S ROOM, No. 155.

In the matter above referred to, and in reply to the letter of the applicant, filed January 3, '70, he is informed that the amendment filed therewith and the new drawing remove the objections of the examiner as to the patentability of the first claim in respect to its merits, but by special instructions from the Commissioner the question of abandonment before mooted in this case has been referred to him in person, and now awaits his action.

The second claim stands rejected (for want of novelty) upon the references before given.

CHAS. EVERETT, *Examiner.*

(Endorsed:) P. O., '78. J. W. Cochran. Letter Jan. 4th, 1870.

(No. 1.)

314 U. S. PATENT OFFICE,
WASHINGTON, D. C., *July 7th*, 1870.

J. W. Cochran, care of Dodge & Munn, Washington, D. C.:

Please find below a communication from the examiner in charge in relation to your application for patent for "breech-loading guns," filed May 6th, 1868.

Very respectfully, COMMISSIONER.

EXAMINER'S ROOM, No. 155.

In the matter above referred to the first claim, as amended December 20th, 1869, is rejected for want of novelty, upon the following references, viz:

Patent of Thos. Lee, dated April 27th, 1858
" dated November 19th, 1861.
" L. Geiger, dated January 27th, 1863. Reissued April, 17th, 1868.
" James Rider, dated January 3d, 1865.
" William H. Elliott, dated April 16th, 1865.
" Laidly & Emery, dated May 15th, 1866.
315 " H. Berdan, dated Jan. 9th, 1866. Reissued September 15, 1868.
" J. Stillman, dated October 17th, 1865.
" R. McChesney, dated May 28th, 1867.
" L. Conroy, dated December 31st, 1867.
" J. Broughton, dated April 14th, 1868, and upon the rejected application of L. Geiger filed August 23, 1867.

The following are cited as additional references to the second claim, as amended December 20th, 1869, viz:

Patent of Thomas Lee, dated November 19th, 1861.
" L. Geiger, dated January 27th, 1863. Reissued April 7th, 1866.
" James Rider, dated January 3d, 1865.
" Laidly & Emery, May 15th, 1866.
" H. Berdan, dated January 9th, 1866. Reissued September 15th, 1868.
" James Stillman, dated October 17th, 1865.
" R. McChesney, dated May 28th, 1867.
" L. Conroy, dated December 31st, 1867.
" J. Broughton, dated April 14th, 1868.

CHAS. EVERETT, *Examiner.*

(Endorsed:) No. 78. P. O., J. W. Cochran. 6th rejection, July 7th, 1870.

316 (No. 1.)

U. S. PATENT OFFICE,
WASHINGTON, D. C., *November 7th*, 1870.

John W. Cochran, care of Dodge & Munn, Washington, D. C.:

Please find below a communication from the examiner in charge

in relation to your application for patent for "breech-loading guns," filed May 6th, 1868. (S.)

Very respectfully, COMMISSIONER.

EXAMINER'S ROOM, No. 155.

In the matter above referred to the English patent of W. E. Newton, No. 1172, May 25th, 1858, is given as an additional reference to the second claim.

CHAS. EVERETT, *Examiner.*

(Endorsed:) P. O., 78. John W. Cochran. Nov. 7th, '70.

317 To the Commissioner of Patents.

SIR: I hereby amend my specification filed May 8th, 1868, by cancelling the four last lines of the amendment filed January 3, 1870, and substituting therefor the following:

"I am aware that a gun has heretofore been described having a swinging breech block similar to mine, and therefore I do claim such a breech piece separately considered. I am also aware that a gun has been described in which there was a breech block having a longitudinal backward movement as well as a swinging movement with a tooth pivoted thereto to act as an extractor, and therefore I do not claim such." (Amendment A, filed Nov. 22, 1870. Insert in lieu of amendment C, filed January 3, 1870. See official letter Nov. 23d, 1870.)

I also amend by cancelling the 2d claim, and substitute the following:

"I claim the combination in a breech-loading gun of a breech block swinging backward in the arc of a circle around a fixed point, with ejector arranged in relation thereto substantially as described, so that the opening of the breech will operate the ejector, and thereby withdraw or start the cartridge shell from the chamber of the gun substantially as set forth. I also claim the combination of the swinging breech and the ejector with the pivoted brace, all arranged in relation to each other, substantially as described." (Amendment, filed Nov. 22, 1870. Not entered.)

JOHN W. COCHRAN,
By DODGE & MUNN,
Attorneys.

November 21st, 1870.

(Endorsed:) John W. Cochran. Breech-loading gun. Amendment. Filed November 22, 1870. Not entered on account of erasures, &c. See official letter November 23d, 1870.

318 (No. 1.)

U. S. PATENT OFFICE,
WASHINGTON, *November 23d*, 1870.

John W. Cochran, care of Dodge & Munn, Washington, D. C.:

Please find below a communication from the examiner-in-charge in relation to your application for patent for "breech-loading guns," filed May 6th, 1868.

Very respectfully, COMMISSIONER.

EXAMINER'S ROOM, No. 155.

In the matter above referred to the application stood rejected on the 7th of July last, previous to the passage of the law of July 8th, 1870. It will, therefore, under section 35 of said act, require renewal before further action can be taken.

The amendment filed November 22d contains numerous interlineations and erasures, and under rule 9 of this office, ed. July, 1870, cannot be received.

CHAS. EVERETT, *Examiner.*

(Endorsed:) P. O. 78. John W. Cochran. Letter Nov. 23d, 1870.

319 To the Commissioner of Patents.

SIR: In reply to the office letter of November 23, 1870, in reference to the application of J. W. Cochran, filed May 6th, 1868, we would say, first, that although the office states that the case cannot be proceeded with without being renewed under the act of 1870, still, as the record shows, it has been proceeded with and acted on by the office, of its own motion, too, without having been thus renewed. The very action that called forth the amendment, which we are now told cannot be considered, was taken by the office without any request on the part of the applicant, and without any renewal.

Second, the interlineations and erasures referred to were made in the presence of the examiner then in charge, and at his suggestion one of the erasures, consisting simply of the correction of the date of an amendment previously filed, to correspond with the record, and was made by the examiner himself, as was both proper and necessary. The others were, as the papers show, merely formal—a mere transposition or addition of a few words to slightly vary the phraseology, and not at all affecting the sense or substance of the claim.

It is therefore apparent that the action is dictated by what the recent Commissioner very appropriately styled "the hand of adverse criticism," rather than a desire to expedite the matter or do justice, and is but in keeping with the action had in this case from the first.

320 That there may, however, not be even a shadow of an excuse for further delay, we file herewith a formal renewal and a copy of the amendments, free from erasures or interlineations, and now ask that the case may be proceeded with without further delay.

Respectfully, &c., DODGE & MUNN,
Attorneys for J. W. Cochran.

(Endorsed:) No. 78. J. W. Cochran. Breech-loading gun. Att'ys' letter. Renewal and amendment. Filed Dec. 5, '70.

321 To the Commissioner of Patents.

SIR: I hereby amend my specification filed May 8th, 1868, by cancelling the four last lines of the amendment filed January 3d, 1870, and substituting therefor the following:

"I am aware that a gun has heretofore been described having a swinging breech block similar to mine, and, therefore, I do not claim

such a breech piece separately considered. I am also aware that a gun has been described in which there was a breech block having a longitudinal backward movement, as well as a swinging movement, with a tooth pivoted thereto to act as an extractor, and, therefore, I do not claim such."

(Amendment A, filed Dec. 5, '70. Insert in lieu of amendment C, filed January 3d, 1870. Erase and insert amendment filed March 23, 1872.)

I also amend by cancelling the 2d claim and substituting therefor the following:

2. "I claim the combination in a breech-loading gun of a breech block swinging backward in the arc of a circle around a fixed point, with an ejector arranged in relation thereto, substantially as described, so that the opening of the breech will operate the ejector, and thereby withdraw or start the cartridge shell from the chamber of the gun, substantially as set forth."

(Amendment B, filed Dec. 5, 1870. Erase and insert amendment filed March 23, 1872.)

322 3. "I also claim the combination of the swinging breech and the ejector, with the pivoted brace or support, all arranged in relation to each other, substantially as described."

(Amendment B, concluded. Erase and insert amendment filed Mar. 23, 1872.)

J. W. COCHRAN,
By DODGE & MUNN,
His Attorneys.

(Endorsed:) Amendment. J. W. Cochran. Breech-loading gun. Filed Dec. 5th, 1870.

323 To the Commissioner of Patents:

Your petitioner represents that on the 6th day of May, 1868, he filed an application for a patent, the same being a renewal of a formal application, which application, after having been rejected by the office, was allowed by Judge Fisher, of the supreme court of the District of Columbia, on appeal; that subsequently, the office gave additional references, which were overruled by the board on appeal, and that subsequently to the passage of the act of July 8, 1870, the office, of its own motion, has again rejected the application and given still another reference, and now refuses to consider the amendment called forth by this its own action, on the ground that said case has not been technically renewed; therefore, for the purpose of having the amendment considered, I hereby renew the said application and hereby reserving any and all rights which have accrued to me by the decision of said judge in my favor.

J. W. COCHRAN,
By DODGE & MUNN,
His Attorneys.

(Endorsed): J. W. Cochran. Breech-loading gun. Renewal.

(No. 1.)

324 U. S. PATENT OFFICE,
WASHINGTON, D. C., *December 17th*, 1870.

J. W. Cochran, care of Dodge & Munn, Washington, D. C.:

Please find below a copy of a communication from the examiner-in-charge, in relation to your application for a patent for breech-loading fire-arms, filed May 6th, 1868.

Very respectfully, SAMUEL S. FISHER,
Commissioner.

EXAMINER'S ROOM, No. 155.

The application above referred to has been re-examined in connection with the amendments filed on the 5th instant, and is again rejected upon the following references, viz:

(For the first claim.)

Patent of Thos. Lee, dated April 27th, 1858.
" " dated November 19th, 1861.
" L. Gieger, dated January 27th, 1863.
Reissued April 17th, 1866.
" Jas. Rider, dated January 3d, 1865.
" Wm. H. Elliott, dated April 16th, 1865.
" Laidley & Emery, dated May 15th, 1866.
325 " H. Berdan, dated January 9th, 1866.
Reissued September 15th, 1868.
" J. Stillman, dated October 17th, 1865.
" R. McChesney, dated May 28th, 1867.
" L. Conroy, dated December 31st, 1867.
" J. Broughton, dated April 14th, 1868, and upon the rejected application of L. Geiger, filed August 23d, 1867.

(For 2d and 3d claims.)

Patent of Thomas Lee, dated November 19th, 1861.
" L. Geiger, dated January 27th, 1863.
Reissued April 7th, 1866.
" J. Rider, dated January 3d, 1865.
" Laidley & Emery, dated May 15th, 1866.
" H. Berdan, dated January 9th 1866.
Reissued September 15th, 1868.
" J. Stillman, dated October 17th, 1865.
" R. McChesney, dated May 28th, 1867.
" L. Conroy, dated December 31st, 1867.
" J. Broughton, dated April 14th, 1868.

All of the above references, with the exception of the patent of Thomas Lee, April 27th, 1858, are given in view of the requirements of office rule 41, July, 1870.

CHAS. EVERETT, *Examiner.*

(Endorsed:) P. O., John W. Cochran. Rejection, Dec. 17th, '70.

326 (No. 1.)

U. S. PATENT OFFICE,
WASHINGTON, D. C., *March 20th*, 1872.

J. W. Cochran, care of Dodge & Munn, Washington, D. C.:

Please find below a communication from the examiner relative to your application for a patent for breech-loading fire-arms, filed May 6th, 1868.

Very respectfully, COMMISSIONER.

EXAMINER'S ROOM, No. 15.

In the matter of the application of J. W. Cochran for a patent for breech-loading fire-arms the first claim is substantially shown in the French patent of Flobert, tome 53, plate 8, page 26, Brevets D'Invention, &c., and the patent of Thomas Lee, April 27th, 1858. The second claim is also substantially shown in the English patent No. 1172, A. D. 1858. It is suggested that the claims be all written upon the same sheet.

G. A. STURGES, *Ex'r*,
Per V. D. STOCKBRIDGE, *Ass't*.

(Endorsed:) P. O., to J. W. Cochran. Letter, March 20, '70.

327 To the Commissioner of Patents.

SIR: We submit herewith an amendment in the case of J. W. Cochran's application, filed May 8th, 1868, with the disclaimer and claims all written out anew, and together, as suggested in the office letter of March 20th, 1870.

It will be seen, by a careful examination of the amendment now submitted, that the disclaimer has been enlarged, and the claims limited, so as to carefully avoid the various references cited. For instance, the swinging breech block *per se* is disclaimed, in fact never has been claimed by Cochran. Flobert's nose locking device and Lymm's longitudinally moving, swinging breech and extractor are also disclaimed, while the upward swinging locking brace avoids Lee's gun, which has its locking shoulder or wedge swinging downward and backward.

It is thought the case as now presented is free from objections, and that it may and should be allowed.

Respectfully, &c., DODGE & MUNN, *Attorneys*.

(Endorsed:) John W. Cochran. Breech-loading gun. Attorney's letter. Filed March 23, 1872.

328 (No. 1.)

U. S. PATENT OFFICE,
WASHINGTON, D. C., *March 26*, 1872.

J. W. Cochran, care Dodge & Munn, Washington, D. C.:

Please find below a copy of communication from the examiner relative to your application for a patent for breech-loading fire-arms, filed May 6th, 1858.

Very respectfully, M. D. LEGGETT,
Commissioner.

EXAMINER'S ROOM, No. 155.

In the matter of the application of J. W. Cochran for a patent for breech-loading fire arms, the 1st and 2d claims, as amended March 23d, 1872, are rejected upon the references heretofore given in official letter of March 20th, 1872. In view of the state of the art, as indicated by the references, only very specific or limited claims can properly be allowed, and such only, where the features em-
329 bodied therein are shown to be an improvement upon what has been done before, or operate in a substantially (and *and* not accidentally) different manner.

The cases of "Flobert" and Lee have a brace pivoted to the frame, operating in combination with a backward and downward swinging breech block, and in the case of "Flobert" the brace swings in the same direction relative to the breech block as in the present case; consequently, if there be any novelty in the applicant's combination intended to be embraced in the first claim, such novelty has not yet been pointed out or defined.

Relation to the 2d claim, the Eng. patent cited is believed to meet the terms of said claim, notwithstanding the disclaimer thereto.

G. A. STURGESS, *Ex'r.*
V. D. STOCKBRIDGE, *Ass't.*

(Endorsed:) P. O., to J. W. Cochran. Rejection March 26, '72.

330 To the Commissioner of Patents.

SIR: In the matter of the application of J. W. Cochran for a patent on his improvement in breech-loading guns, we submit herewith an amendment that we think can and should be allowed. All of the references cited in the office letters of March 20th and 23d have been specifically disclaimed, and the claims presented do not embrace them, either in terms or in substance. It was never pretended that Lee's gun was a reference, except as to the broad idea of pivoting some kind of a locking device in rear of the breech; and it is excluded by the very words of the 1st claim, as is also Flobert's, which has no locking brace of any kind but the nose of the hammer. Such a device as either Lee or Flobert uses cannot be used with Cochran's breech block. Neither his breech nor his frame were ever intended to be used with such devices, and his locking brace is entirely different from them. As to the 2d claim, it is now limited to the special devices shown originally by Cochran, and which are materially different from that shown in the English patent, which, as a whole, is a very different thing indeed, and which has also been disclaimed heretofore.

The claims are of course to be construed in connection with the disclaimer; and it would indeed be a strange proceeding to
331 insist on giving as a reference a thing that has already been specificially disclaimed.

We trust that the case may be finally disposed of by being passed for issue.

Respectfully, &c., DODGE & MUNN, *Attorneys.*

(Endorsed.) P. O., J. W. Cochran. Breech-Loading Gun. Att'ys' Letter.

(No. 1.)

U. S. PATENT OFFICE,
WASHINGTON, D. C., *April 6th*, 1872.

J. W. Cochran, care of Dodge & Munn, Washington, D. C.:

Please find below a communication from the examiner relative to your application for a patent for a breech-loading fire-arms, filed May 6th, 1868.

Very respectfully, COMMISSIONER.

332 EXAMINER'S ROOM, No. 155.

In the matter of the application of J. W. Cochran for a patent for Breech-Loading Fire-Arms, the 2d claim, as amended April 4th, 1872, is rejected upon the reference already cited.

G. A. STURGESS, *Ex'r*,
Per V. D. STOCKBRIDGE.

(Endorsed.) P. O., to J. W. Cochran. Rejected 1-3, April 6, '72.

333 To the Commissioner of Patents.

SIR: While we think the claim, as it stands, is not met by the reference, still, to avoid further delay, we submit a still further amendment, that we trust will remove the objections urged to the claim.

A careful examination of the reference will show an important difference in the two devices. In the English gun, the extractor consists of a pawl, pivoted to the horizontal arm of the breech block, with a separate spring behind the pawl, to hold it up. The pawl itself lies inclined, in such a position that the barrel of the gun has to be cut entirely through on its under side, to afford room for it, and, as demonstrated at the official trial of arms by the Government, in this city, this is a fatal defect in the guns, because, when heavily charged, the barrel yields at that point, and is bulged out so as to prevent the parts from working, thereby disabling the arm. By these means alone the Spencer and all other guns which had their barrels cut away in this or a similar manner were disabled at the trial.

Now, by the applicant's construction, this is avoided, because, with his spring hook extractor, the barrel is not cut through, but simply has a small recess cut in its rear end, for the point of the hook to enter, thus leaving the metal unbroken on the under side of the chamber. So to-, in case the stud *o* is used, a small recess only is formed for it in the end of the barrel, and when the breech
334 is closed, this stud fills this space, and being solid on the breech block, forms a solid support at that point, and thus prevents the cartridge from bursting and letting the gas escape into the breech mechanism, which the English gun is sure to do, because its extractor has no solid support, but rests loosely on a spring that will yield the moment any strain is brought upon it. It will thus be seen that there is a very material difference between the applicant's device and the reference.

Not only this, but a breech block like the English cannot be used and made to swing on a fixed center. The slotted arm prevents it from being opened, without being drawn back, that is, slid bodily backward, and such device the applicant has explicitly disclaimed.

No reference has been shown, anticipating his device, which has a breech block swinging backward on a fixed centre, with an extractor attached, so as to draw or start the shell, by the simple act of swinging the breech around a fixed center, in that manner. We trust we have now made the difference between these devices so plain that it can be seen; and having disclaimed the device referred to, and having limited the claim to the special construction embodied in applicant's device, we can see no reason why it should not be allowed.

Respectfully, &c., DODGE & MUNN,
Attorneys.

(Endorsed:) J. W. Cochran. Breech-loading gun. Attorneys' letter.

335 To the Commissioner of Patents.

SIR: I hereby amend my specification filed May 6th, 1868, by cancelling the amendments filed December 20th, 1869, and December 5th, 1870, and substituting therefor the following:

"I am aware that a gun has heretofore been described having a swinging breech block similar to mine, and therefore I do not claim such breech block separately considered. I am also aware that a gun has been described in which there was a breech block having a longitudinal backward and also a downward movement, with a tooth pivoted thereto, to act as an extractor; also, that a pistol has been described having a swinging breech that was locked in position by the nose of the hammer when fired, and therefore I do not claim such; but having fully described my invention, what I do claim is: (Amendment filed March 23, 1872.)

1. The combination, in a breech-loading gun, of a breech block pivoted so as to swing backward and downward in opening, in combination with a brace or support pivoted to the frame in rear of said breech, with its locking end or shoulder arranged to swing upward in unlocking the breech, substantially as described.

2. I claim the combination, in a breech-loading gun, of a breech block pivoted so as to swing backward and
336 downward in the arc of a circle around a fixed point, with an extractor arranged in relation thereto, substantially as described, whereby the opening of the breech will operate the extractor without any longitudinal movement of the breech, as set forth.

3. I also claim the combination of the swinging breech block and the extractor with the pivoted lever or brace, the said parts being arranged in relation to each other, and the combination being substantially such as herein described.

JOHN W. COCHRAN,
By DODGE & MUNN.

Erase and insert amendment filed April 4, 1872.

(Endorsed:) Amendment filed March 23d, 1872. No. 78. J. W. Cochran. Breech-loading gun.

337 To the Commissioner of Patents.

SIR: I hereby amend my specification filed May 6th, 1868, by cancelling the 1st and 2d clauses of claim and substituting the following:

1. "The combination in a breech-loading gun, of a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point, with a brace, other than the nose of a hammer, pivoted to the frame in rear of said block, said brace being arranged to swing upward in unlocking the breech, substantially as described.

2. The swinging breech block B, having the spring extractor *u* or stud *o* attached, all constructed and arranged to operate substantially as set forth."

Erase and insert amendment filed April 9, 1872.

JOHN W. COCHRAN,
By DODGE & MUNN, *Att'ys.*

(Endorsed:) Amendment filed April 4, 1872. No. 78. John W. Cochran. Breech-loading gun.

338 To the Commissioner of Patents:

I hereby amend my specification filed May 6th, 1868, by substituting for the second claim the following:

2. The breech block B, pivoted to the frame so as to swing backward and downward, without any longitudinal sliding movement in opening, in combination with the extractor (*u* or *o*), the combination and mode of operation being substantially such as herein described." (Amendment filed April 9, 1872.)

JOHN W. COCHRAN,
By DODGE & MUNN, *Att'ys.*

(Endorsed:) No. 78. J. W. Cochran. Breech-loading gun. Amendment filed April 9, 1872.

339 To the Commissioner of Patents.

SIR: In the matter of the application of J. W. Cochran for a patent on his improvement in breech-loading gun, the office letters of January 7, 1870, written subsequent to the decision of the case by the appellate judge, awarding the patent, gives a new reference, and then concludes by saying that, "by special instruction of the Commissioner, the question of abandonment, before mooted in this case, has been referred to him in person, and now awaits his action."

Inasmuch as that was the main question decided by the judge on appeal, and inasmuch, also, law specially provides that "such decision so certified shall govern the further proceedings of the Commissioner in such case," we respectfully submit that the question of abandonment, having been thus decided by the judge on appeal, and his decision having been duly certified to the office, is no longer a question before the office. (Sec. 11, act of 1839.)

We know of no law or rule of practice by which this question can be further passed upon by the Commissioner; nor do we know of any precedent for such a proceeding, nor of any reason in this particular case why such action should be taken by the office.

We therefore respectfully request that the case may be referred to the examiner for such action as may be found necessary, in view of any reference since found, if such there be, and the case
340 allowed to proceed in the usual course of business, as has heretofore been the settled practice of the office.

Respectfully, &c., DODGE & MUNN,
Attorneys for Cochran.

(Endorsed:) J. W. Cochran. Breech-loading gun. Request for action.

Hayden (*ex parte*) Appeal Case, 1860, page 356, vol. 3, Appeal Book 3. Merrick, J.:

"Judge Grier, in the circuit court of Pa., in case of Crandle and Rich *vs.* Lippincott & Barr, and Judge Nelson, in the N. Y. circuit, in Gaylor *vs.* Wilder, both held where a party, by a mistaken rejection of his claim, had been induced to withdraw his application and get a return of $20, as the law provides, and acting purely under this mistake of his rights, occasioned by the error of the office, suffered his invention to go into public use for several years, and afterwards, upon discovering his mistake, applied for and obtained a patent, he had not, by the withdrawal under such circumstances, abandoned his right, but that his second application related back by the operation of the law to the date of his first application, so as to cut away the forfeiture which otherwise would have happened by the long intermediate use."

Winchester *vs.* Singer, page 175–6–8, Appeal Book No. 3. Merrick, J., 1859:

341 "The declaration of Judge Woodbury in case of Adams *vs.* Edwards (ms.), Nelson in Gaylor *vs.* Wilder, and Grier in Crandel & Rich *vs.* Lippincott & Barr are relied upon as settling, by the highest authority, that if a first application is withdrawn, either for the sake of money or on account of poverty, or under a mistake, if it was rejected by the office under a mistake, and the inventor yielded, but, on discovering his mistake or being better advised, made a new application within a reasonable time, there is in such case no abandonment of the invention, and the second application will relate back to the first."

If a party chooses to withdraw his application for a patent and pay the forfeit, intending at the time of such withdrawal to file a new petition, and he accordingly does so, the two petitions are considered as parts of the same invention, and both as constituting one continuous application within the meaning of the law.

Judge Swayne, Godfrey *vs.* Eams, — Wallace, 325.

342 Memorandum of fee paid at U. S. Patent Office.

Inventor, J. W. Cochran.
Invention, fire-arms.
Date of payment, April 20, 1872.
Fee, $20—final.
Solicitor-, Dodge & Munn.
Sent patent to Dodge & Munn.

No. 126,446. 1868. H.

John W. Cochran, of New York, county of New York, State of New York.

Breech-loading guns.

Rec'd, May 6, 1868.
Petition, " " "
Affidavit, " " "
Specification, " " "
1 Drawing, " " "
Model, " " "
Cert. dep.
1 Cash, $15, May 6, 1868.
Add'l fee cert.,
343 1 Add'l fee, cash, $30, April 20, 1872.
Examined April 10th, 1872, G. A. Sturgess.
Issue, Knight, April 10, 1872.
4 Patented, May 7, 1872.
Recorded, vol. —, page —.
Circular, April 11, 1872.

DODGE & MUNN, *Pres't.*

1868.

Rejected October 13, '68.
Rejected October 22, '68.
Letter, Dec'r 18, '68.
Letter, Jan'y 6, '69.
Rejected ⅔ by ex'r-in-chief Jan'y 19, '69.
Rejected Dec'r 15, '69.
Rejected ½ Dec'r 24, '69.
Letter, Jan'y 4, '70.
Letter, Rejected, } July 7, '70.
Letter, Add'l reference, } Nov'r 7th, 1870.
Letter, Nov'r 23d, 1870.
Rejected Dec'r 17th, 1870.
Letter, March 20, 1872.
Rejection March 26th, 1872.
Rejected ½ April 6th, 1872.

Improvement in breech-loading fire-arms.

344

126,446.

UNITED STATES PATENT OFFICE.

JOHN W. COCHRAN, of New York, N. Y.

Improvement in Breech-Loading Fire-Arms.

Specification forming part of Letters Patent No. 126,446, dated May 7, 1872.

To all whom it may concern:

Be it known that I, John W. Cochran, of New York, in the county of New York, and State of New York, have invented certain new and useful improvements in breech-loading guns, and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

345 To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention consists in a novel construction and arrangement of a swinging breech piece with a brace pivoted to the frame in rear of the breech piece for the purpose of holding the same securely in position while the gun is being fired. It also further consists in combining with the breech piece an ejector for starting or removing the cartridge shell as the breech is opened.

Figure 1 is a longitudinal vertical section with the breech closed. Fig. 2 is a similar view with a modification of the cartridge ejector. Fig. 3 is a longitudinal vertical section with the breech partially opened, to represent the operation of withdrawing the shell. Fig. 4 is a top plan view of the breech block detached.

A represents the barrel, which is constructed in the usual style for this class of arms, the rear end of the barrel being left entirely open. D represents the stock, made of any suitable style to adapt it to the working parts of the arm. In rear of the barrel I locate a breech block, B, of the form represented in the drawing. This breech block I hinge or pivot at its front lower portion on a bolt, *e*, as represented in Figs. 1, 2, and 3, it being of suitable size to entirely cover and close the breech end of the barrel when turned up in the position represented in Figs. 1 and 2. In the drawing I have represented the front face of this breech block B as having in it a recess of sufficient size to fit over the rear end and flange of the cartridge *f* when the breech is closed; but it is obvious that instead of having this recess in the face of the breech block it may be omitted and

346 the rear of the chamber be counterbored to permit the flange of the cartridge to enter and rest therein, the result being the same in either case. For the purpose of securely locking or bracing this breech block B in place when closed, so as to withstand the pressure of the gases evolved in the discharge of the arm, I pivot a lever, C, in the under part of the stock D, in rear of the breech block, as represented in Fig. 1, this lever C being pivoted on a bolt, *a*, and

having its front end formed substantially as shown, so as to form a strong brace, resting against the rear side of the breech block, and thus brace it firmly in place, as clearly shown in Figs. 1 and 2. This lever extends back a suitable distance and terminates in a handle, *h*, by which it can be readily operated.

As will be seen by Fig. 4, the breech block is so constructed that that portion which rests against the front end of the lever C forms a central longitudinal projection much narrower than the front portion which covers the rear end of the barrel. This form is adopted simply to save metal and weight, and because by thus forming it a less space is required for it to rest in when turned back.

The device for withdrawing the cartridge shell consists of a small spring hook, *n*, fitted into a recess of proper size in the front side or face of the breech block B, as shown in Figs. 1 and 3; this spring *n* having its front end formed into a small hook to pass under and in front of the flange of the cartridge shell when the breech is closed, as represented in Fig. 1. To enable this hook, *n*, to slip under the flange of the cartridge (in case the latter has been shoved entirely into the chamber while the breech block remained thrown back), the upper front point or portion of the hook should be slightly
347 beveled, as represented in Fig. 3, and there should be a small recess made in the rear end of the barrel, at its lower side, for this projecting point of the hook to enter as the breech is closed; this recess being shown in Fig. 3 at *u*.

With the breech block B and the ejector *n* thus constructed and arranged, it will be seen that when a cartridge, *f*, is shoved into the chamber and the breech then closed, the hook on the end of the ejector *n* will be forced under the flange and engage with the front face of said flange, as represented in Fig. 1, and that when the breech block B is swung back the hook on the front end of the ejector *n* will draw the cartridge shell out of the bore as it swings back with the breech to a point where, as it moves in the arc of a circle, of which the pivot *e* is the center, it passes below the horizontal plane in which the flange of the shell moves, when it will be released from the shell, leaving the latter sticking part way out of the rear end of the barrel, as clearly represented in Fig. 3; or, if the breech block be thrown suddenly back, the momentum imparted to the shell may be sufficient to throw it entirely out of the chamber. As, however, springs are considered objectionable, especially in military arms, subjected, necessarily, to rough treatment, it is obvious that instead of the spring *n* the ejector may consist of a solid spur or stud, *o*, formed on the lower front side of the breech block B, as represented in Fig. 2; this stud *o* operating in the same manner to withdraw the shell as the spring ejector *n* would. If, however, this form be adopted, care must be taken not to shove the cartridge entirely into its place in the chamber before commencing to close the breech block; because, if it were, then it is obvious that the stud *o*
348 would strike against the rear end of the cartridge when the breech was closed, and thus prevent the breech block from closing perfectly, and, at the same time, endanger the exploding of the cartridge, especially if rim-primed cartridges were used. When

this form of ejector is used the shell should be shoved partially in and the breech block B then turned up, the stud *o* passing under the flange and the block B at the same time shoving the cartridge into its place, with the stud *o* in front of the flange ready for withdrawing the shell when the breech is opened.

It is obvious that either center or rim primed cartridges may be used in such a gun. If the arm be intended for using the latter only, then a firing pin will be located in the breech block B, in the position represented by *t* of Fig. 4, so as to strike the flange of the cartridge. If central-primed cartridges are to be use, then the firing pin will be located as represented by the dotted lines in Fig. 2, so as to strike at the center of the rear end of the cartridge.

If desired, a link or rod, *l*, may be used to connect the lever C with an arm or projection formed on the lower extremity of the breech block, as represented in red in Fig. 1, for the purpose of opening and closing the breech by the movements of the lever C. If this be done, there must be sufficient lost motion in the link *l* to permit the front end of the lever C to pass from behind the block B, and thus unlock the latter before the link *l* operates on the breech block to throw it open. Whether this link *l* be used or not, the upper rear face of the block B should be formed on the arc of a circle, of which *e* is the center, or nearly so, and the front arm of the lever C be so
349 curved or formed as to permit the breech block to swing down in front of it as the latter is thrown up.

By these means I construct an arm that is simple, efficient, and durable, and which, by the act of opening the breech, withdraws the shell in whole or in part without the use of any other devices or parts than those attached to and forming a part of the breech block.

I am aware that a gun has heretofore been described having a swinging breech block similar to mine, and therefore I do not claim such breech block separately considered.

I am also aware that a gun has been described in which there was a breech block having a longitudinal backward and also a downward movement, with a tooth pivoted thereto to act as an extractor; also that a pistol has been described having a swinging breech that was locked in position by the nose of the hammer when fired; and therefore I do not claim such; but, having fully described my invention, what I do claim is:

1. The combination, in a breech-loading gun, of a breech block pivoted so as to swing backward and downward in the arc of a circle around a fixed point, with a brace other than the nose of the hammer pivoted to the frame in rear of said block, said brace being arranged to swing upward in unlocking the breech, substantially as described.

2. The breech block B, pivoted to the frame, so as to swing backward and downward without any longitudinal sliding movement in opening, in combination with the extractor *n* or *o*, the combination and mode of operation being substantially such as herein described.

350 3. I also claim the combination of the swinging breech block and the extractor with the pivoted lever or brace, the

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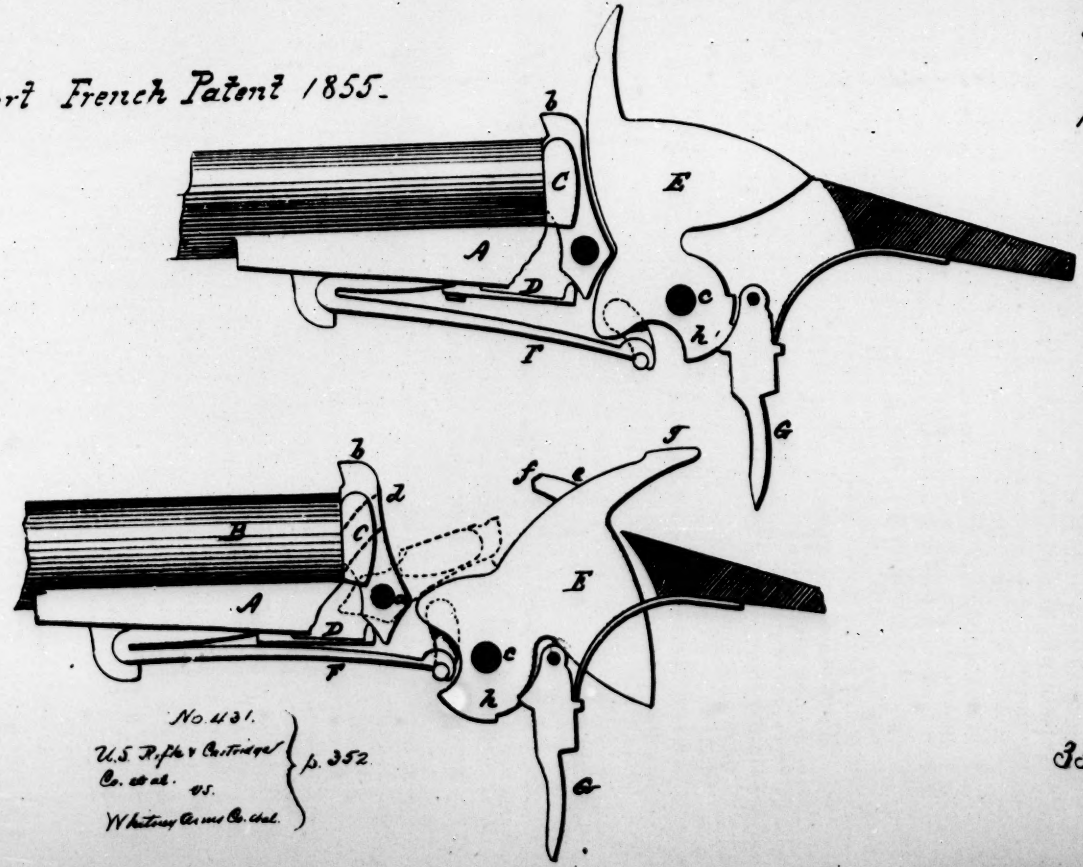
Flobert French Patent 1855.



No. 431.

U.S. Rifle & Cartridge Co. et al. vs. Whitney Arms Co. et al. } p. 352

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JOHN W. COCHRAN.

Improvement in Breech-Loading Fire-Arms.

No. 126,446. Patented May 7, 1872.

1103

Fig. 1.

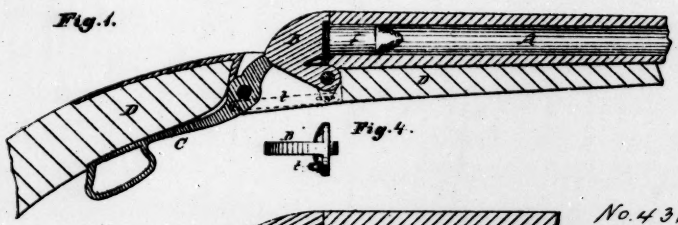
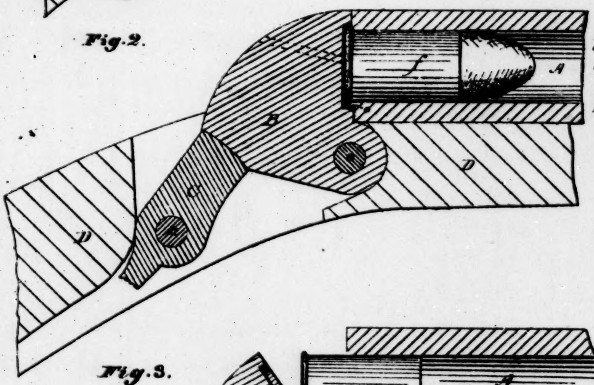


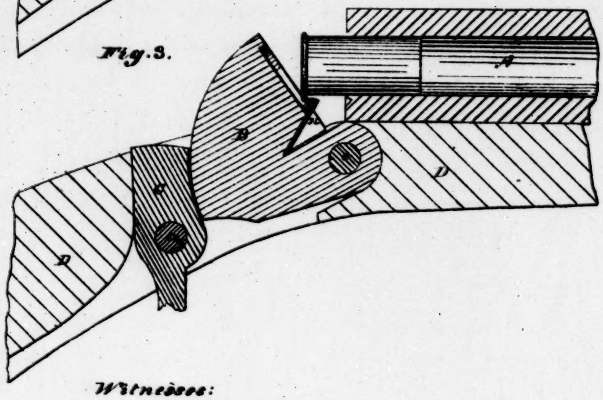
Fig. 4.

Fig. 2.



No. 431.
U.S. Rifle & Carbine Co. et al. vs. Whitney Arms Co. et al.
} p. 351

Fig. 3.



1104

Witnesses:
Phil. T. Dodge.
R. B. Gill.

Inventor:
J. W. Cochran

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said parts being arranged in relation to each other, and the combination being substantially such as herein described.

J. W. COCHRAN.

Witnesses:
JOHN BISSELL.
W. C. DODGE.

(Here follow diagrams, marked pp. 351, 352.)

353 THE UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted A. E. Burnside, dated March 25th, 1876, No. 14491, for "improvement in breech-loading fire-arms."

In testimony whereof, I, Ellis Spear, Acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed, this twenty-fifth day of November, in the year of our Lord one thousand eight hundred and seventy-four, and of the Independence of the United States the ninety-ninth.

[L. S.] ELLIS SPEAR,
Acting Commissioner.

354 THE UNITED STATES OF AMERICA.

To all to whom these letters patent shall come:

Whereas Ambrose E. Burnside, of Bristol, R. I., has alleged that he has invented a new and useful improvement in breech-loading fire-arms, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said Ambrose E. Burnside, his heirs, administrators, or assigns, for the term of fourteen years from the twenty-fifth day of March, one thousand eight hundred and fifty-six, the full and exclusive right and
355 liberty of making, constructing, using, and vending to others to be used the said improvement, a description whereof is given in the words of the said Burnside in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof, I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the city of Washington, this twenty-fifth day of March, in the year of our Lord one thousand eight hundred

and fifty-six, and of the Independence of the United States of America the eightieth.

[L. S.] ROBERT McCLELLAND,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
C. MASON,
Commissioner of Patents.

356 AMBROSE E. BURNSIDE, of Bristol, R. I.

Letters Patent No. 14491, *dated March* 25, 1856.

To all whom it may concern:

Be it known that I, Ambrose E. Burnside, of Bristol, in the county of Bristol and State of Rhode Island, have invented certain new and useful improvements in breech-loading fire-arms, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, part of this specification, in which—

Fig. 1 is a side view of a rifle, with my improvements attached.

Fig. 2, a longitudinal section through the same, with the breech pin or chamber swung away from its seat.

Figs. 3, 4, 5, and 6, details to be referred to hereafter.

The chief difficulty experienced in the construction and use of breech-loading fire-arms arises from the tendency of the discharge to open the joint between the barrel and the breech piece or chamber, the two being forced in contrary directions by the explosion, and however exact the workmanship or strong the parts are made the open joint will leak, and the bearing surfaces are soon fouled. To remedy this inconvenience is the object of my invention, which consists in the use of a cartridge case made wholly or partially of soft metal, which remains within the chamber or breech piece
357 when the piece is discharged, and which is expanded by the force of the explosion into or against the open joints between the barrel and the breech piece—chamber or breech pin—and effectually prevents leakage by packing the joints.

My invention also consists in a movable or sliding cone seat or breech pin, by means of which the empty cartridge case is expelled or loosened from the breech piece or chamber after the discharge.

To enable others skilled in the art to understand my invention I will proceed to describe the manner in which I have carried it out. In the accompanying drawings, A is the stock, B, the barrel, C, the movable breech piece or chamber, which is pivoted at D, and is secured to the lever E, by which it is operated. F is a movable cone seat or breech pin, to which a slight motion in the direction of the axes of the barrel is communicated in the following manner: *b* is a groove in one side of the cone seat or breech pin, in which plays a pin, *a*, projecting from the stock. This groove is so formed that when the breech piece or chamber is returned to its place the cone seat is drawn back to its greatest distance, as seen dotted in Fig. 1. In this position the nipple *d* is brought immediately beneath the hammer, and ready to receive its blow. As the breech piece or

chamber is withdrawn the cone seat is advanced farther into it, as seen in Fig. 2, for a purpose that will be presently explained.

The construction and operation of the soft metal cartridge case will now be explained. Fig. 3 is a section through one of the cases as it is cast, and before it is charged. The hole *c*, for the entrance of the cone *d'*, is closed with varnished paper or tin foil, and the powder is introduced, as seen in Fig. 2. The ball, having been
358 well tallowed, is then inserted, and the case is closed around it by pressure applied by hand, or in a suitably formed presser or swage. In lieu of being formed entirely of soft metal, the cartridge cases may be made of sheet copper, iron, or other suitable material, and be surrounded by a ring or projection of soft metal at the points opposite to the open joint. In order that the breech piece or chamber may not be thrown out of its position by the force of the discharge, the rear of the movable cone seat or breech pin is curved from a center within the axis of the barrel, and is made to bear upon a seat, a small portion of which is correspondingly curved a short distance above and below the prolongation of the axis of the barrel. The discharge is thus caused to retain the breech piece or chamber in its firing position, as it cannot be withdrawn therefrom until the movable cone seat or breech pin be advanced into the position seen in Fig. 2. This is also an assistance in throwing the cone seat forward, and of itself under ordinary circumstances would be sufficient to retain the breech piece or chamber in its firing position. But as we may want to place the projecting portion of the curved surface lower down, as at T, for instance, and also for additional security, I have adapted the following device for the purpose of more unfailingly accomplishing this end. H is a bolt, which passes transversely through the stock immediately in the rear of the movable breech piece or chamber. This bolt is cylindrical, and is cut away upon one side, *f*, to enable the breech piece or chamber to be returned to its place. The bolt is then revolved by the thumb piece or handle I, by which means its cylindrical portion is caused to enter a corresponding cavity, *g*, in the breech piece or chamber, which is thus held securely in place. In order that the piece may not be
359 discharged until the bolt H has been turned into the cavity *g*, the handle I is caused to be over the guard, as seen in red in Fig. 1, and obstruct the entrance of the finger to the trigger, whenever the breech piece is in place and not secured by its bolt.

Operation. The parts being in the position represented in Fig. 2, the metallic cartridge is dropped into the breech piece or chamber, which is returned to its firing position by the operating lever, F, and bolted by the bringing up the handle, I. The joints between the barrel and the breech piece or chamber, and between the latter and the movable cone seat or breech pin, are thus covered by the soft, metal cartridge case, which, at the instant of discharge, is forced into or against these joints, thus effectually preventing the passage of smoke through them, and keeping the parts untarnished. After the piéce is discharged the breech piece or chamber is withdrawn, as in Fig. 2, and the movable cone seat or breech pin is caused to advance by the pin, *a*, and projection, *y*, and thus the empty cartridge

case is loosened from its chamber so that it may easily be withdrawn by hand if it be desired to save them to be again employed in a similar manner.

Where the firing is rapid, as in an action, the gun may be turned over after the breech has been withdrawn, when the empty case will fall out, and may be instantly replaced by a new one. It is evident that the above-described principle may be employed in the construction of breech-loading cannon, or to fire-arms of any other character or description.

Claims. What I claim as my invention, and desire to secure by letters patent, is:

First. The use of a cartridge case made partially or wholly of soft metal in combination with a beveled mouth in the rear
360 of the barrel and the movable chamber of a breech-loading fire-arm for the purpose of packing the joints thereof and operating in the manner substantially as herein set forth.

Second. I claim the movable cone seat or breech pin in combination with the soft-metal cartridge case operating in the manner substantially as herein described to eject the empty cartridge case as set forth.

AMBROSE E. BURNSIDE.

Witnesses:
WILLIAM C. G. CUSHMAN.
WILLIAM P. BRADFORD.

(Here follows diagram, marked p. 362.)

363 THE UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Thomas Lee, dated April 27th, 1858, No. 20073, for "improvement in breech-loading fire-arms."

In testimony whereof, I, Ellis Spear, Acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this twenty-fifth day of November, in the year of our Lord one thousand eight hundred and seventy-four, and of the Independence of the United States the ninety-ninth.

[L. S.] ELLIS SPEAR,
Acting Commissioner.

364 THE UNITED STATES OF AMERICA.

To all to whom these letters patent shall come:

Whereas Thomas Lee, of New York, N. Y., has alleged that he has invented a new and useful improvement in breech-loading fire-arms, which he states has not been known or used before his application, has made oath of his intention to become a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United

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A. F. Burnside,
Breech Loader.

No 14,491. Patented Mar 25. 1856.

No. 431.
U. S. Rifle & Cartridge Co. et al. } p. 362.
vs.
Whitney Arms Co. et al.

1122

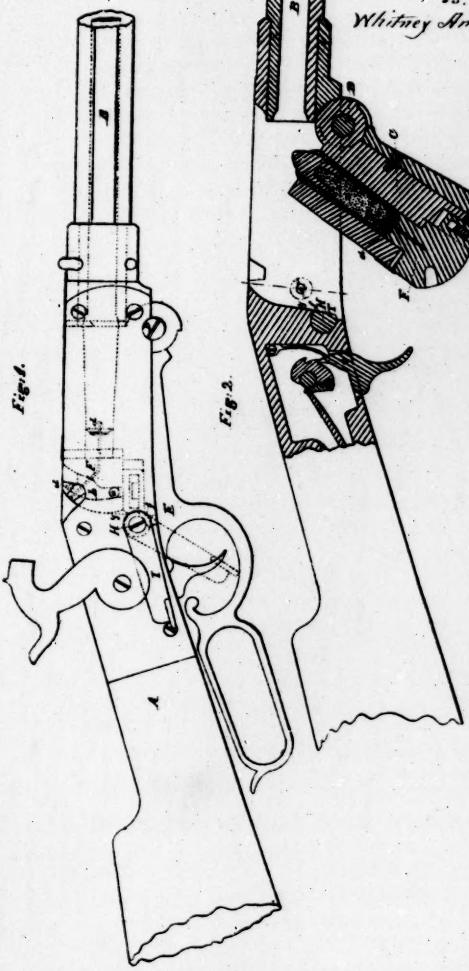


Fig 6.

Fig 4.

Fig 5.

Fig 3.

States the sum of thirty dollars, and presented a petition to the Commissioner af Patents, signifying a desire of obtaining an exclusive property in the said improvemeut, and praying that a patent may be granted for that purpose:

These are therefore to grant, according to law, to the said Thomas Lee, his heirs, administrators, or assigns, for the term of fourteen years from the twenty-seventh day of April, one thousand eight hundred and fifty-eight, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used,
365 the said improvement, a description whereof is given in the words of the said Thomas Lee in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof, I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the city of Washington, this twenty-seveth day of April, in the year of our Lord one thousand eight hundred fifty-eight, and of the Independence of the United States of America the eighty-second.

[L. S.] JACOB THOMPSON,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
J. HOLT,
Commissioner of Patents.

THOMAS LEE, of New York, N. Y.

Letters Patent No. 20073, *dated April* 27*th*, 1858.

366 To all to whom these presents shall come:

Be it known that I, Thomas Lee, of the city, county, and State of New York, have invented, made, and applied to use certain new and useful improvements in breech-loading fire-arms, and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making part of this specification, wherein—

Fig. 1 is a vertical section of my improvements as in use.

Fig. 2 is a side elevation of the hammer and priming apparatus, and—

Fig. 3 is a plan of the breech and apparatus for delivering the capsules or pillets to explode the piece.

Similar marks of reference denote the same parts.

The nature of my said invention consists in a peculiar arrangement of devices for opening and closing the breech of the fire-arm. Also in a manner of delivering pillets or capsules of detonating material as the hammer is discharged for firing the piece.

In the drawings *a* is the barrel of the fire-arm attached to the breech chamber *b*, that is formed with or connected to the straps and lock plate *c c*, which straps are attached to any ordinary stock or carriage for the fire-arm. Within the opening formed by the straps and lock plate to the rear of the barrel, I introduce the

breech piece *d*, set and moving on the pin or screw 1, and
367 this breech piece sets up against the rear end of the barrel with annular recesses 2 2, into which metal such as platina or copper is cast while the breech is put in its place, so that this metal, being compressed and not easily corroded, keeps the joint perfectly tight.

e is a lever on a fulcrum screw, 3, carrying the curved locking piece *f*, the end 4 of which is made cam-shaped, so that as the said lever *e* is forced forward the breech *d* will be thrown up into place, and the said cam-shaped end 4 will pass over the part 5 of the rear of the mortise in which the parts move, and the breech *d* will thus be sustained firmly in its place against the explosion. When the lever *e* is drawn backward and downward into the position shown by dotted lines in Fig. 1 the breech *d* will turn back, exposing the open rear end of the barrel for the insertion of another cartridge. And, if desired, a pin or projection might be used on the blocking piece *f* to draw the said breech piece downward and backward.

The act of opening the breech is made to cock the hammer *g* by means of a detent, *h*, acting on the tail piece *i* from said hammer. *K* is the main spring and shackle to the tumbler as usual, and the hammer is to be discharged by any suitable trigger. In order to cap or prime the piece, I make use of a circular box, *l*, containing balls or pillets of detonating powder. *m* is an arm actuated by a spring, and tending to force said pillets towards the delivery orifice 6 in a manner similar to the boxes to contain percussion caps, which, therefore, needs no further description, the box being shown open in Fig. 2.

The manner which I adopt of discharging these pillets from the orifice 6, one at a time, into the pan 7 on the breech *d*, and
368 excluding the fire from the next pillet, is as follows: 8 is a small rod or piston connected to the tumbler 9 of the cock *g*, running through the strap *c* to the hole 6, where it terminates with an incline or beveled end. 10 is a similar rod in a continuation of the hold in which the rod 8 moves, and formed with an inclined or beveled end also, see dotted lines Fig. 3. This rod 10 is kept toward the hole 6 by a spring, 11, acting upon the end thereof.

The operation of these parts is that when the hammer is cocked the rod 8 is drawn back, and a pillet passes into the hole in which it moves, and as the hammer descends into the pan 7 the said rod 8 comes up against the rod 10, and their inclined ends force the pillet out sidewise into the pan 7. To prevent any fire passing to the hole 6 I make use of a shield, *n*, upon a center, 12, provided with an arm, 13, outside the strap or lock plate *c*, and a spring, 14, to keep the said guard down over the hole 6, except at the moment the pillet is discharged therefrom, at which moment the cam piece 15 on the cock *g* takes the end of said arm 13, turning back the shield *n*, and the further descent of the cock causes the cam 15 to pass clear of the end of said arm 13, and the spring 14 returns the guard or shield *n* to its place over the hole 6 before the explosion takes place. Upon cocking the hammer the arm 13 springs sidewise as the cam piece 15 passes it on rising, and then returns beneath said cam piece,

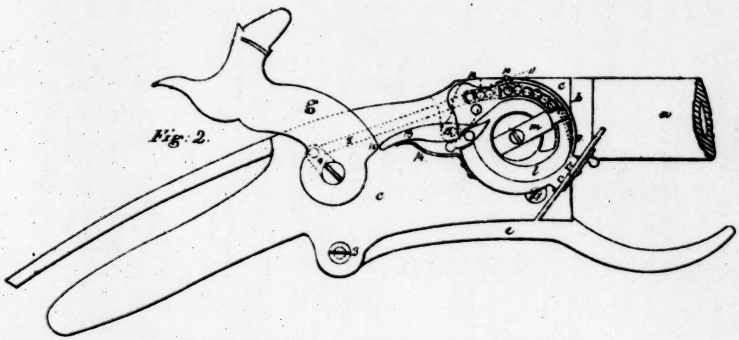
379

T. Lee,

Breech Loader.

No 20073. Patented Apr 27. 1858.

Fig. 2.



1140

Fig. 3.

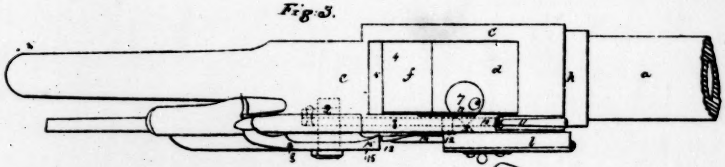
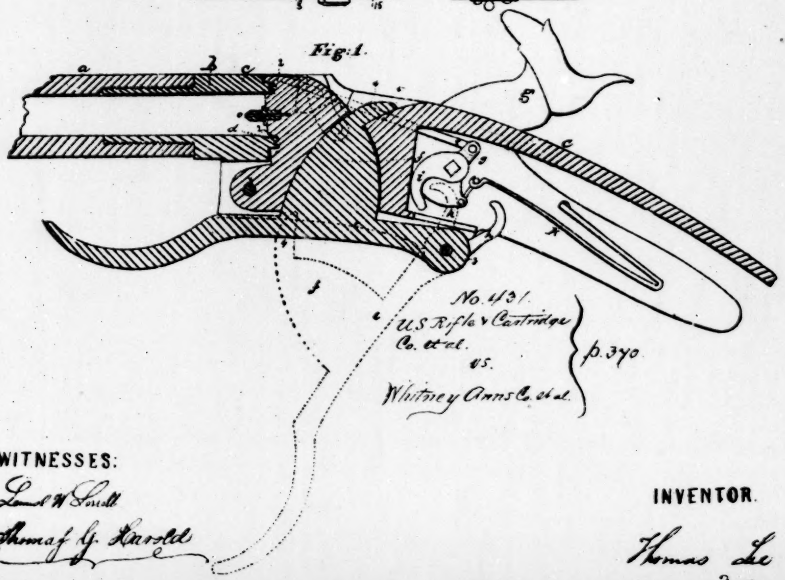


Fig. 1.



No. 413.
U.S. Rifle & Cartridge Co. et al.
vs.
Whitney Arms Co. et al.
p. 370

WITNESSES:

Lem W Spell

Thomas G. Harold

INVENTOR.

Thomas Lee

370

said arm being formed as a spring, as seen in Fig. 3, to allow of this motion. O is a perforator on the breech *d*, to enter the cartridge, through which the touch hole leads from the pan 7.

Having thus described my said invention and shown the operation of the same, I shall limit my claims as follows:

369 What I claim as my invention, and desire to secure by letters patent, is—

First. The breech piece *d*, on its center pin 1, in combination with the lever *e*, blocking piece *f*, and cam-shaped end 4, the whole constructed and acting substantially as specified.

Second. I claim the manner herein described of delivering the detonating pillets, and shutting off fire from the same by the use of the inclined ended rods 8 and 10, and shield *n*, constructed and operating substantially as specified.

In witness whereof, I have hereunto set my signature, this seventeenth day of March, 1858.

THOMAS LEE.

Witnesses:
LEMUEL W. SERRELL.
THOMAS G. HAROLD.

S. M. E.

(Here follows diagram, marked p. 370.)

371 THE UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted A. D. Perry, dated November 28th, 1854, No. 12001, for "improvement in breech-loading fire-arms."

In testimony whereof, I, Samuel A. Duncan, Acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this first day of November, in the year of our Lord one thousand eight hundred and seventy-one, and of the Independence of the United States the ninty-sixth.

[L. S.] SAMUEL A. DUNCAN,
Acting Commissioner.

372 THE UNITED STATES OF AMERICA.

To all to whom these letters patent shall come:

Whereas A. D. Perry, of Newark, N. J., has alleged that he has invented a new and useful improvement in breech-loading fire-arms, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a

desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said A. D. Perry, his heirs, administrators, or assigns, for the term of fourteen years from the third day of June, one thousand eight hundred and fifty-four, the full and exclusive right and liberty of making,
373 constructing, using, and vending to others to be used the said improvement, a description whereof is given in the words of the said Perry in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof, I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the city of Washington, this twenty-eighth day of November, in the year of our Lord one thousand eight hundred and fifty-four, and of the Independence of the United States of America the seventy-ninth.

[L. S.] ROBERT McCLELLAND,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

C. MASON,
Commissioner of Patents.

374 *The Schedule referred to in these Letters Patent and making part of the same.*

To all to whom these presents shall come:

Be it known that I, A. D. Perry, of Newark, in the county of Essex, and State of New Jersey, have invented an improvement in breech-loading fire-arms, and that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known, and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawings.

My invention consists in the peculiar and effectual mode of closing the breech of the gun after the cartridge has been inserted, providing most effectually against the escape of the gas and the recoil of the breech piece under the effect of the discharge; thereby obviating one of the principal objections to breech-loading fire-arms. I am aware that hinged breech pieces having the axis of rotation in the plane of the rear of the barrel are not new, and also that it is not new to have projecting conical pieces on breech pieces for breaking the cartridge or concentrating the fire in the center of the powder; and I am also aware that it is not new to have breech pieces with a circular surface, revolving in a corresponding recess in the stock; but I am not aware that a segmental revolving breech piece, like mine,
375 has been used, in which there is a cylindrical or conical projection on its face to enter the bore of the barrel, when the plane surface of the breech piece is brought up in contact with the rear of the bore of the barrel, and having a circular surface fitting in a corresponding recess at its rear; and it is a combination of these features that constitutes the chief merit of my invention. I have

also invented a peculiar combination and an arrangement of parts for the purpose of holding this peculiar breech piece firmly in place during the discharge, to be hereinafter described.

Fig. 1 represents the segment piece drawn back from the breech in position for loading; and

Fig. 2 represents the breech closed by the segment piece.

The segment piece (*a*) turns upon the center (*b*) within a slot (*s*) in the gun stock, and has upon its face a projection (*p*) to enter and fit the open end of the barrel as seen in Fig. 2. In the center of this projection is a raised nipple (*d*), and around this nipple a slight depression (d^1). The fire from the cap enters the charge through the center of this nipple, and the purpose of this nipple, is to concentrate the fire upon the charge, in consequence of the nipple being forced slightly within the surface of the end of the cartridge.

The segment piece is worked on and off the breech of the barrel by means of the cam levers (*g*) (*h*) and the hand lever (*i*).

The hand lever is provided with a spring latch (*m*) to secure it in place by the catch (*n*). The lever (*g*) is jointed to the segment piece within a slot (g^1) in the same, and the lever (*h*) is jointed to lever (*g*) within a slot (g^2) in this lever, and the lever (*h*) is also jointed to lever (*i*) within a slot (*i*) in this lever.

376 There is a notch and projection at (h^1) on lever (*h*) which bears upon the end of the lever (*g*), when the segment commences to move toward closing the barrel, but as the segment advances it will be seen from the drawing Figs. 1 and 2, that lever (*g*) changes its relation to (*h*), the end of *h* bearing upon the side of (*g*), and pushing its lower end into cavity (*k*) in the gun stock. The extremity of (*g*) bearing upon the side of cavity (*k*) is so made and moved as to wedge itself as it advances and thus forces the segment piece firmly against the breech of the barrel and holds it in place. The parts around and below the projection (*p*) are cut away so as to leave room for grit or dirt to fall out of the way of the fitting parts.

The operation of the segment piece is simple, and from the small number of parts and their relation, arrangement, and operation, the work keeps clean and in order.

I have not described or shown the mode of priming or any part of the lock of the arm, they not being essential to the illustration of this improvement, and obvious to those skilled in the art.

I do not wish to be understood as claiming the position of the fulcrum or center of motion as applied to breech pieces generally, nor do I claim a revolving breech piece, except under an arrangement and combination as herein above set forth.

Therefore, what I do claim in my improvement in breech-loading arms is:

The employment of the revolving segmental breech having its center of motion below, and in the line of the face of the breech of the barrel and a central plug to fit the bore of the barrel, so
377 that when the breech piece and the breech of the barrel are brought together they shall fit, in the manner and for the purposes set forth.

I also claim in combination with said breech piece the levers (*g*) (*h*) (*i*) arranged and operating as set forth.

And I also claim in combination with said arrangement or system of levers *g*, *h*, *i*, the recess (*k*) in the stock of the arm in the manner and for the purposes set forth.

A. D. PERRY.

Witnesses:
T. CAMPBELL,
G. GRAY.

(Here follow diagrams, marked pp. 378, 379, 380.)

381 And thereafter, on the 22nd day of January, A. D. 1877, the court filed an opinion in favor of the defendants, directing the dismissal of the bill with costs, which was as follows, viz:

Circuit Court of the United States for the District of Connecticut.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY and E. REMINGTON & SONS

vs.

THE WHITNEY ARMS COMPANY and others.

SHIPMAN, J.:

This is a bill in equity to restrain the defendants from an alleged infringement of letters patent granted to John W. Cochran on May 7, 1872, for improvements in breech-loading guns. The plaintiffs are the owners of the patent, and E. Remington & Sons, for whose benefit the suit is brought, are the exclusive licensees thereunder. The answer of the defendants denies infringement upon their part, and also denies novelty of invention upon the part of the patentee, and alleges that the application of the said Cochran for a patent was filed on May 6th, 1868, and that for more than two years prior to said date the invention had been in public use and sale, with the consent and allowance of said Cochran, and that prior to the said date the invention had been abandoned to the public.

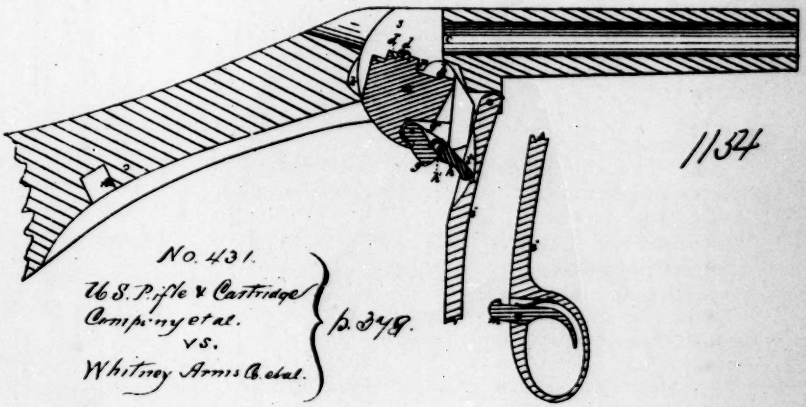
382 Mr. Cochran's application for a patent was made on the 11th of January, 1859, and was rejected February 8, 1859. No appeal was taken from the original rejection by the primary examiner, and on February 20, 1860, the application was withdrawn, and twenty dollars, the balance of the Patent Office fee, was refunded to the applicant. On May 6th, 1868, Mr. Cochran filed a new application, which was rejected on the ground of abandonment. The decision of the board of examiners was affirmed by Mr. Fisher, who was then Commissioner, whose decision was reversed by the supreme court for the District of Columbia. The Commissioner then declined to issue the patent, but after the passage of the patent act of July 8th, 1870, a new application was filed, and the patent was issued by the successor of Mr. Fisher. During the interval of eight years between the first rejection and the second application Cochran obtained twenty-two different patents upon his own application, none of which patents relate especially to breech-loading fire-arms. He was constantly occupied after 1859, and especially

392

A. D. Perry,
Breech Loader.

No 12,001. Patented Nov 28, 1854.

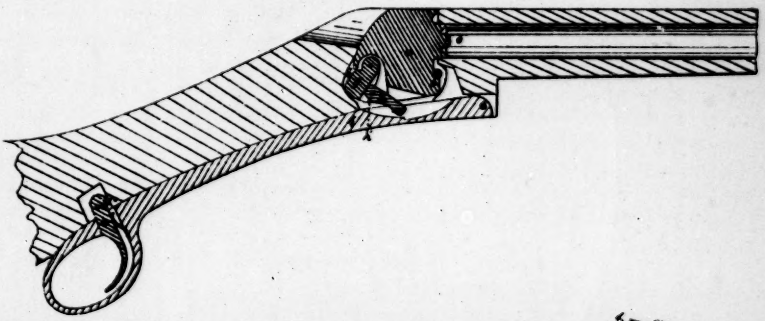
Fig. 1.



1134

No. 431.
U.S. Rifle & Cartridge Co'mpy et al.
vs.
Whitney Arms Co et al.
} p. 348.

Fig 2

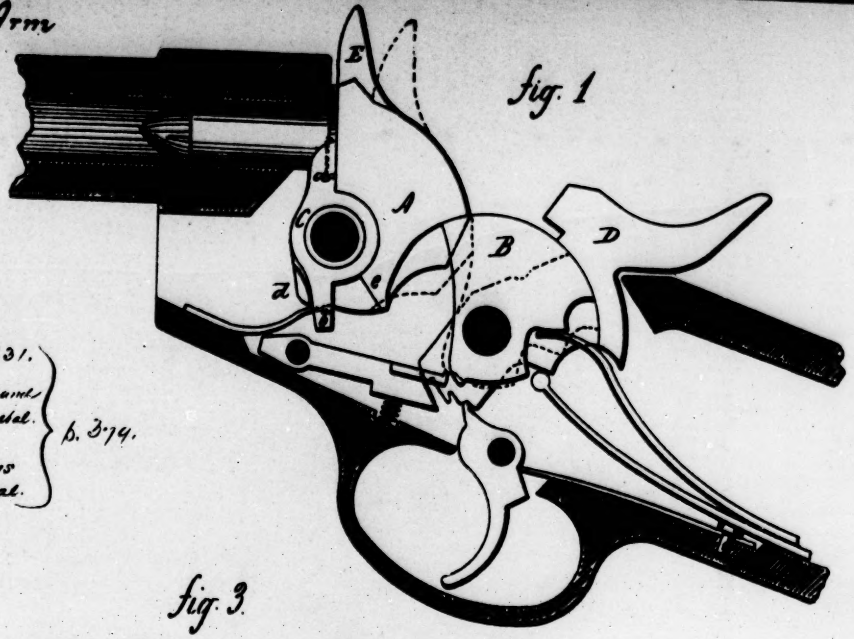


378

Whitney Arm

393

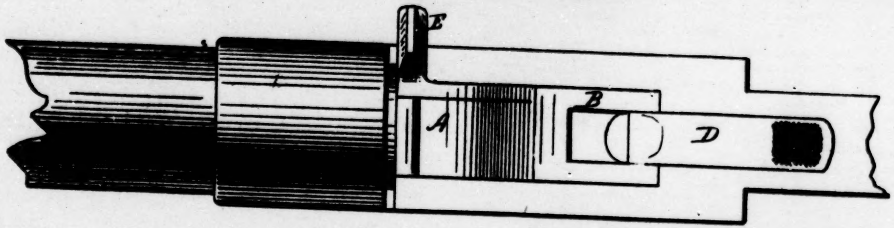
fig. 1



No. 231.
U.S. Rifle and Cartridge Cases
vs.
Whitney Arms Company et al.
} p. 379.

1165

fig. 3.

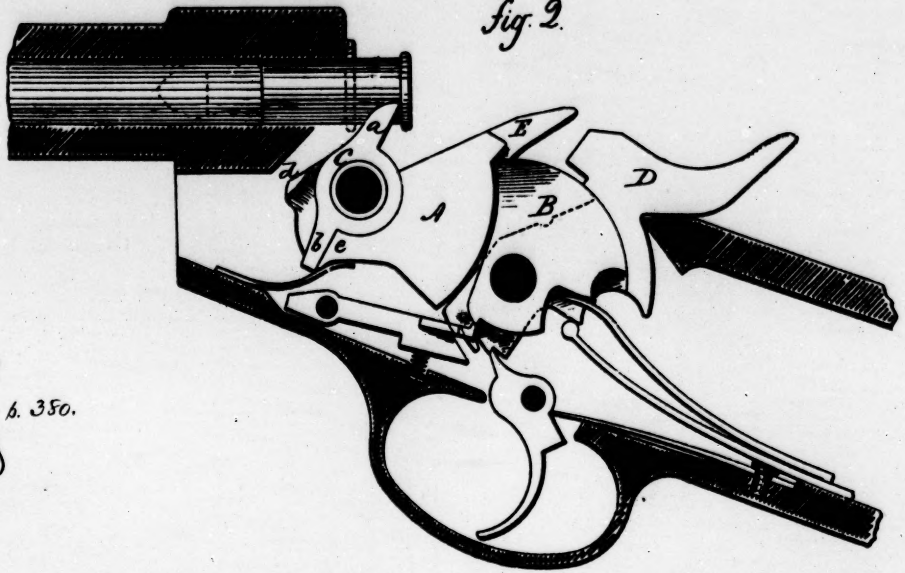


379

394

Whitney Arm

fig. 2.



1156

No. U 31.
U.S. Rifle and Cartridge Co. et al.
vs.
Whitney Arms Co. et al.
} p. 380.

380

during the war of the rebellion, in endeavors to perfect and to bring to the favorable notice of the War Department and of
383 the public his inventions other than the one which is now in controversy. He sold in the year 1865 an English patent for another breech-loading fire-arm for the sum of $18,000 (of which sum $5,000 was spent in making models and procuring foreign patents), and went to England on two occasions for the purpose of introducing that weapon to the foreign market. He was during a portion of this interval very poor, in debt, and in ill-health, and his habits were irregular, but he was prosecuting his other inventions with constancy and energy. There is no evidence that any arm embodying the invention in controversy was ever constructed by Mr. Cochran or by any person on his behalf; neither is there any evidence that he ever sought means to renew his application, or that he said or did anything which indicated his idea that this invention was to be pressed or was to be or become available to him. On the contrary, he apparently acquiesced in the action of the Patent Office, and entirely turned his attention to other inventions. He died on January 2d, 1873. Patents were granted to James Stillman in 1865, and also to Laidley & Emory in 1866, for improvements in fire-arms, which are embodied in the gun of the defendants, and constitute its peculiar features. It was said by
384 Commissioner Fisher, in his opinion upon the second application, that the primary examiner reported that the devices mentioned in the 1st and 2d claims of Cochran's specification prior to the passage of this act, the practice of the Patent Office in regard to the granting of renewed applications for patents after the lapse of years from the date of their previous rejection or withdrawal was not uniform. It had been held that the withdrawal of an application, and the neglect to prosecute it within a reasonable time was an abandonment of the invention. The contrary had been held both by the Patent Office and the inventors, whose applications had been rejected, were desirous of renewing them, and it was proper both that some limitation should be placed upon the time within which the new applications should be made, and that some stable principle should be adopted in regard to the question of abandonment. The section provided that the question should be regarded as a matter of fact; that lapse of time should not of itself be conclusive evidence of abandonment, but that the decision of each case should depend
385 upon its peculiar circumstances as a question of fact and not of law.

Both parties, while uniting in this construction of the 35th section, differ materially in the effect to be given to the decision of the Commissioner upon a renewed application which was made subsequent to the passage of the act. The plaintiffs contend that this decision is conclusive upon the question of abandonment, and is not open to review collaterally, while the defendants insist that a patent granted upon a renewed application is still open to the same attacks which can be made upon any other patent.

The decision of the Commissioner in regard to the questions which have been committed to his exclusive jurisdiction are final.

His decision is conclusive in regard to the sufficiency and competency of the formal acts and proofs which the statute provides shall be prerequisite to the issuing of a patent. He is moreover made the tribunal which is to decide both in regard to the existence of those facts upon which an extension of patents issued prior to March 2d, 1861, is to be made. By the 32d section of the act of 1870
386 he is to judge of the sufficiency of the reasons for delay, exceeding two years, in prosecuting applications which shall be thereafter made. Upon these three subjects which are submitted to him his decision is conclusive.

The statute also provides that an inventor of an improvement not known or used by others in this country, and not patented or described in any printed publication in this or any foreign country before his invention, and not in public use or on sale for more than two years prior to the application, unless the same is proved to have been abandoned, may obtain a patent therefor, and that in an action for an infringement or a suit in equity for relief against infringement the defence of abandonment may be pleaded. The granting of a patent is *prima facie*, but not conclusive, evidence that the right to the invention had not been surrendered to the public. I am of opinion that the decision of the Commissioner in regard to abandonment upon renewed applications which were made under the 35th section has no higher authority or more scope than his
387 decision upon the same question upon an original application, and that all the defences which the statute authorizes may be made as well in respect to patents granted upon applications renewed after the act of 1870 as in respect to those issued upon original applications.

The question is simply whether the 35th section gave the Commissioner the exclusive jurisdiction which is conferred upon him in the cases which have been mentioned. His decision upon a renewed application prior to the act of 1870 had no conclusive effect. The provision that "abandonment shall be considered as a question of fact," when it is admitted that the object of the provision was primarily to make a distinction between questions of law and of fact, hardly confers upon the Commissioner an exclusiveness of jurisdiction which he did not previously have, and which he has not since had, upon any other class of applications.

The question of abandonment being, then, one of fact and now open to examination, it is plain that no laches can be imputed to Cochran after May 6th, 1868, and that the consideration of
388 the question is confined to the eight years subsequent to his withdrawal of the first application. It is also true that lapse of time *per se* constitutes no abandonment, and that upon the defendants rest the burden of clearly establishing by affirmative evidence a positive and actual abandonment or such laches as clearly to indicate an intent to abandon. It may be also considered as true that the original application is conclusive evidence that at its date the inventor did not intend to give his invention to the public, but it is not conclusive evidence that he did not subsequently conceive such intention or that he was not subsequently guilty of such neg-

lect in obtaining a patent that he ought not to have a monopoly to interfere with the equities of those who did anticipate him in giving the public the benefit of their inventive skill and labor.

In considering this question of fact the court is deprived of aid from the testimony of the inventor, who died in 1873. There is, also, an absence of the usual evidence from the declarations
389 or the acts of the inventor in regard to his invention, and the court has, therefore, to consider only the evidence which the undisputed facts on the one side or the other disclose and the inferences from those facts. The application was withdrawn in 1860, and was not renewed until eight years had elapsed. In the mean time Mr. Cochran's attention was directed to other kindred inventions and to inventors of cartridges, shot, and shell, for which he solicited and obtained twenty-two patents in this country. From his letters, which tell also a sad story of poverty, it appears that his mind was constantly engaged in these various patents, and his energies were constantly directed to their development. If it could be shown that his poverty was a reason for his not renewing and pressing an application for this particular invention, such testimony would tend greatly to dispel the idea of laches; but poverty did not deter him from entering into the necessary expenses which his other patents required, and from devoting himself energetically to obtain a recogni-
390 tion of their merits from the Government and from the public. His want of means was not apparently the cause of his not seeking to place the invention in its present position. He was absorbed in the attainment of success in the enterprises which occupied his mind to the exclusion of this invention, which he did not regard of as much value as the others. In the mean time, during the war of the rebellion, inventive skill was greatly stimulated in regard to the perfection of breech-loading fire-arms, and the attention of other inventors than Cochran became engaged in the same line of thought and experiment which he had originally entered upon. In brief, the case shows that Cochran made an invention and an application to the Patent Office, which, upon its rejection, he voluntarily withdrew, and for eight years neglected to renew, while he devoted himself to other inventions. He could have obtained a patent for this improvement, or he could at least have kept his application in the office. Meanwhile his invention is patented by others, and is finally introduced to the public in the year 1867 by the present licensees, when Mr. Cochran presents it again to the Patent Office.

391 The new petition did not of itself sever the second application from the first (Smith *v.* Dental Vulcanite Company, Sup. Ct. of U. S., Oct. T., 1876), but the acts and conduct of Mr. Cochran show that the proceedings to obtain a patent, which were originally undertaken in 1859, had been abandoned, and that there was no apparent intent at the time of the withdrawal to file a new petition; but there was an acquiescence in the decision of the Patent Office. There was no continuity in the two applications.

The case presents very different circumstances from those which are disclosed in Smith *v.* Dental Vulcanite Company, in which case

the original application was never withdrawn; but from the date of the third rejection, in February, 1856, until March, 1864, when the successful petition was again presented, it is found that the inventor did not remit his efforts, but did everything in his power to obtain a patent, and no act amounted to an acquiescence in the rejection. In this case there was a withdrawal of the first application; the efforts to obtain a patent were remitted; nothing was done
392 towards that end; there was an apparent acquiescence in the rejection; there was a devotion of the thoughts and energies of the inventor to other pursuits, a cessation of active interest in the invention, and a relinquishment of any attempt to perfect his title thereto.

A person "may forfeit his rights as an inventor by a wilful or negligent postponement of his claims, or by an attempt to withhold the benefit of his improvement from the public until a similar or the same improvement should have been made and introduced by others." (Kendall *v.* Winsor, 21 Howard, 322.) If there was no purpose on the part of Cochran to withhold his improvement from the public, there was a negligent postponement of his claims until after other inventors had acquired equities which it seems unjust to destroy. The language of Judge Woodruff in "Consolidated Fruit Jar Co." *v.* Wright, 12 Blatchf. C. C. R., 149, though not necessary to the decision of that case, is just, and is pertinent to the facts which are here disclosed:

"If an inventor, without substantial reason or excuse, abandons the use of his invention and for nine years sleeps upon his
393 rights, and in the mean time others in good faith employ their industry, skill, and money in producing the same thing, and give the public the benefit thereof, putting it into extensive use and sale, such a state of facts not only warrants the inference of abandonment by the first inventor, but it also creates, as between him and the others, the same equity as would arise if such others had gone further and taken out a patent. Whether the device be patented, or has 'gone into use without a patent,' should make no difference. (Kendall *v.* Winsor, 21 How., 322.) This is not because lapse of time *per se* deprives an inventor of his right, but because the circumstances giving character to the delay indicate abandonment, and also because the intervening rights of others make it inequitable that he should thereafter be permitted to assert any such exclusive title to the invention." To the same effect is the case of Marsh *v.* Sayles, 5 Fisher's Patent Cases, 610.

I find no adequate evidence of public use by any one for
394 two years preceding the date of the final application. Even if one of the guns which was presented for competitive examination by the board of army officers at Springfield in the year 1865 embodied the Cochran invention, it does not appear to me that the submitting of an invention to the test of examination by experts in competition with other inventions is the public use to which the statute refers. A use for the mere purpose of competitive examination, experiment, and test is not a public use.

Let a decree be entered dismissing the bill.

Frederic H. Betts and George Gifford, for the plaintiffs.
Benjamin F. Thurston, for the defendants.

And on the 8th day of January a final decree was subscribed and entered in said cause in the words and figures following, viz:

395 At a stated term of the circuit court of the United States for the district of Connecticut, held in the city of Hartford on the third Tuesday of September, 1877.

Present: Hon. Ward Hunt, circuit judge; Hon. N. Shipman, district judge.

U. S. RIFLE & CARTRIDGE COMPANY
vs.
THE WHITNEY ARMS CO. } In Equity.

This cause having come to be heard upon the bill of complaint herein, the answer, replication, and the proofs taken and filed in said cause, and having been argued by counsel for the respective parties:

Now, therefore, on consideration thereof, it is ordered, adjudged, and decreed, and the court doth hereby order, adjudge, and decree, that the complainant's said bill be, and the same is hereby, dismissed, with costs to the defendant, to be taxed.

N. SHIPMAN,
District Judge.

And thereafter, on the 20th day of July, A. D. 1878, there was filed and entered in said cause a decree, assented by the complainants' solicitor, which, with the assent thereon endorsed, was in the words & figures following, viz:

396 At a circuit court of the United States for the district of Connecticut, held at the city of Hartford on the — day of July, 1878.

Present: Hon. Nathaniel Shipman, judge.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY & E. REMINGTON & SONS
vs.
THE WHITNEY ARMS COMPANY.

This cause having come on to be heard, after hearing counsel for the respective parties, and on consideration thereof, it is ordered, adjudged, and decreed that the bill herein be dismissed, with costs, and that the defendants do recover of the complainants the sum of ——, their costs and disbursements as taxed, & have execution therefor.

N. SHIPMAN,
District Judge.

Assented to.

B. F. THURSTON,
Sol'r for Def't-.

397 And on the 26th day of September, A. D. 1878, there was filed in court an assent in writing that all previous decrees in the said cause should be vacated, which consent was in the words and figures following, viz:

398 United States Circuit Court, District of Connecticut.

THE UNITED STATES RIFLE AND CARTRIDGE CO. and E. REMINGTON AND SONS
vs.
THE WHITNEY ARMS COMPANY, ELI WHITNEY, President, and ELI WHITNEY.

It is hereby consented that the decree in the above-entitled suit, dated the third Tuesday of September, 1877, and filed January 8, 1878, and the decree in the same suit dated the 20th day of July, 1878, and filed July 20, 1878, be vacated.

New York, Sept. 26, 1878.

BENJ. F. THURSTON,
Sol'r for Def't-.
WHITNEY & BETTS,
Sol'rs for Compl'ts.

And thereupon the final decree in said cause, assented to by the def'ts' solicitors, was subscribed & filed in the words following, viz:

399 At a stated term of the circuit court of the United States for the district of Connecticut, held at the city of Hartford on the 26th day of September, 1878.

Present: Hon. Nathaniel Shipman, district judge.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY and E. REMINGTON AND SONS
vs.
THE WHITNEY ARMS COMPANY, ELI WHITNEY, President, and ELI WHITNEY.
} In Equity.

This cause having come on to be heard upon the bill of complaint herein, the answer, replication, and the proofs taken and filed in said cause, and having been argued by counsel for the respective parties:

Now, therefore, on consideration thereof, it is ordered, adjudged, and decreed, and the court doth hereby order, adjudge, and decree, that the complainants' said bill be, and the same is hereby, dismissed, with three hundred forty-three & $\frac{80}{100}$ dollars, $343.80 costs, to the defendants, and that said defendants have execution therefor.

N. SHIPMAN,
District Judge.

Assented to.

B. F. THURSTON,
For Def't-.

400 U. S. Circuit Court, District of Connecticut.

THE UNITED STATES RIFLE AND CARTRIDGE CO. *et al.*
vs.
THE WHITNEY ARMS CO.

It is hereby stipulated and agreed that the originals of the following exhibits used in the above-entitled suit need not be filed herein, but that the copies of said exhibits as printed in the record in this suit may be regarded and used as if they were originals:

The stipulations appearing on folios 80 & 561 of record.
The Cochran letters patent No. 126,446.
Exhibit License.
Assignments Nos. 1, 2, 3, 4, 5, & 6.

FREDERIC H. BETTS,
Counsel for U. S. Rifle Co.
BENJ. F. THURSTON,
Counsel for Whitney Arms Co.

Dated Ap'l 23d, 1879.

[Endorsed:] U. S. circuit c't, dist. of Conn. The United States Rifle and Cartridge Co. *et al. vs.* The Whitney Arms Co. Stipulation.

401 I, Edwin E. Marvin, clerk of the circuit court of the United States for the district of Connecticut, do certify that the foregoing return is a true copy of the record remaining in said court of the bill, pleadings, evidence, proceedings, and decree in the cause of The United States Rifle & Cartridge Company & E. Remington & Sons against The Whitney Arms Company and others.

In testimony whereof I have hereunto set my hand and the seal of said court at Hartford, in said district of Connecticut, this 15th day of April, A. D. 1879.

[Seal of circuit court, Connecticut.]

E. E. MARVIN, *Clerk.*

Endorsed on cover: Connecticut C. C. U. S. No. 157. The United States Rifle and Cartridge Company and E. Remington & Sons, appellants, *vs.* The Whitney Arms Company, Eli Whitney, president, and Eli Whitney. Filed 1st November, 1882.

118-22

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1885.

No. 157.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY AND E. REMINGTON & SONS, APPELLANTS,

vs.

THE WHITNEY ARMS COMPANY, ELI WHITNEY, PRESIDENT, AND ELI WHITNEY.

OPINIONS IN THE MATTER OF *EX-PARTE* JOHN W. COCHRAN, AND COPIES OF PATENTS FILED BY THE DIRECTION OF THE COURT.

JOHN W. COCHRAN *ex parte*. IMPROVEMENT IN FIRE-ARMS. JUNE 9, 1869.

In the Matter of the Application of JOHN W. COCHRAN for Letters Patent for Improvement in Breech-Loading Gun.

The question presented for decision in this case is one of great importance. I have considered it with care, for I am advised that there are many cases pending and constantly arising in the office the determination of which may be affected by my decision.

Cochran filed his application January 11, 1859. It was rejected February 8, 1859. On February 20, 1860, he filed the following paper, and received $20 of his original fee:

WASHINGTON, *February* 20, 1860.

SIR: I hereby withdraw my application for a patent for fire-arms, now in your office, and request that $20 may be refunded to me, agreeably to an act of Congress in such cases made and provided.

J. W. COCHRAN.

To the Commissioner of Patents.

Applicant did nothing further until May 6, 1868, or more than eight years afterward, when he filed a new application, using the same model. This is the application now under consideration. It contained three claims, all of which were rejected by the primary examiner. Upon appeal to the board of examiners-in-chief the case was remanded to the primary examiner for inquiry and report as to the number of patents granted after the withdrawal and before the second application in which the same invention appeared in other combinations or as part of the descriptive matter. Upon this report, it appearing that the devices specified in the first and second claims were found in some eighteen different patents granted within the period named, but that no patent was found showing the devices specified in the third claim, the board affirmed the decision of the primary examiner in rejecting the first and second claims, and reversed his decision as to the third claim. which they allowed. An appeal has been taken to me from the decision of the board in refusing to allow the first and second claims.

The question before me may be thus stated: Can an inventor withdraw his application, make no effort to renew it for eight years, during which time the subject-matter of the invention has been incorporated into the substance of many subsequent inventions, and then file a new application, and obtain a patent which, to support the novelty of the invention, shall relate back to the first application?

Many conflicting opinions have been entertained upon this question. The practice of the office has not always been consistent. Patents may be found, doubtless, that have been granted under circumstances similar to those of the present application and similar cases may also be found where patents have been refused. This is in part owing to the fact that of twenty examiners any one may pass

a patent for issue, and the decision, if favorable to the patentee, is not the subject of appeal.

The decisions of the appellate judges and of the courts upon this subject have not been more uniform than those of the office. Authorities upon this question, as upon most questions relating to the patent law, may readily be obtained upon both sides.

Prima facie, it would seem that an application deliberately withdrawn was abandoned, and could no longer form a foundation for a second application, and that if such second application was made it must be entirely independent and could derive no support from the first; that if public use intervened between the withdrawal and the second application, and for more than two years before the filing of the latter, the patent, if granted, must be void.

This was the opinion of the judge who tried the case of Godfrey *vs.* Eames, on circuit. In that case the first application was withdrawn and the second filed upon the same day. Upon the trial it appeared that the invention had been in public use for more than two years before the second application, but for less than two years before the first. The court charged the jury that the continuity of the application was broken by the withdrawal and that the public use must date back upon the second application. The Supreme Court (Godfrey *vs.* Eames, 1 Wall., 317) held that this was error; but it is important to note the grounds of this decision. The court say: "In our judgment, if a party choose to withdraw his application for a patent and pay the forfeit, *intending at the time of such withdrawal* to file a new petition, and he accordingly does so, the two petitions are to be considered as parts of the same transaction, and both as constituting one continuous application, within the meaning of the law.

"The question of the continuity of the application should have been submitted to the jury."

It is obvious that the court do not mean to declare that the two petitions constitute one continuous application, no matter what may be the interval between them, and that the fact of the filing of the second petition is evidence that the intention to do so existed when the first was withdrawn, for they say "that there is still a question of continuity to be submitted to the jury," and this obviously means that the jury are to judge of the question of the intention of the patentee in withdrawing the first application, and whether the interval is so long between the applications as to destroy the continuity or to rebut the presumption that upon withdrawing the first application the patentee *intended* to file the second.

The case of Godfrey *vs.* Eames was a suit at law. If it had been in equity the question of intention and of continuity would have been submitted to the judge, to be determined like any other question of fact.

On an application for the issue of a patent it is the duty of the Commissioner to decide all questions, both of law and of fact, which go to establish the right or the absence of right in the applicant to a patent.

Marcy *vs.* Trotter, Dunlop, J., 1860.

The questions of the intentions of the applicant and of the continuity of the application are therefore submitted to the Commissioner for his judgment precisely as they would be submitted to a court of equity. The foundation of this judgment is, I think, well set forth by Judge Dunlop in Simpson *ex parte*, in 1861. He says: "A rejected applicant who has withdrawn his application may renew it, provided the renewed application is made within a *reasonable* time after the withdrawal and return of the fee."

Nothing is more common than to submit the question of reasonable time or reasonable diligence as a question of fact for adjudication. The difficulty of coming to a conclusion does not obviate the necessity of a decision, and no judge is justified in evading the responsibility of deciding any point which properly arises.

Among the analogies which might be referred to is the ordinary case of the failure to present a draft for payment within a reasonable time after it becomes due. The drawee fails, and the drawer is discharged from liability. No time is fixed for the presentation of the draft, but the law declares that it must be presented within a *reasonable* time, and submits to a court or jury the question as to what is or what is not resonable.

I am satisfied that in every case like the present the Commissioner must judge whether or not the application is continuous, or whether the continuity is broken by a failure to file the second petition within a reasonable time after the withdrawal of the first.

As to what constitutes a reasonable time I am not without the light of authority. In the case of Simpson *ex parte*, above cited, the learned judge says: "Section 7 of the act of 1839 fixes what is a reasonable time. There is no reason why a renewed application should have more than two years allowed it, computing the time from the date of the withdrawal. Both classes of applications, original and renewed, are applications for patents, and come within the letter and spirit of the statute."

This view is enforced by the fact that by the act of March 3, 1861, the applicant is required to complete and prepare his application for examination within two years after the filing of the petition, and that in default of such preparation the application shall be regarded as abandoned.

These provisions of the patent law seem to establish a *quasi* statute of limitations which may safely form a guide for the Commissioner in determining the question of reasonable diligence.

It must be remembered that withdrawn applications were those which had been but once rejected. The inventor might have insisted upon a second examination—might have appealed to the Commissioner, and from the Commissioner to one of the justices of the circuit court. He did none of these things. While claiming to have been rejected by the fault of the office, he took no single step to correct the action of which he complained. He withdrew his application, waited eight years, and now applies again. Meanwhile his device has been copied in various forms in no less than eighteen subsequent patents.

If his application takes date from the filing of the new petition he

is clearly anticipated by these patents. If it is to date back to the filing of the first petition these subsequent patentees will be infringers. It is not a sufficient answer to say that the first rejection was improperly made, and that therefore all the evils which may follow the granting of his patent at the present time are the fault of the office and must be charged to the Commissioner. This is a fallacy. If the office was in fault in the original rejection the law provided a mode of correcting the fault, which it was as much the duty of the applicant to pursue as it was to file his original application. The law neither points out nor recognizes such a mode of correction as a withdrawal of the application for the purpose of endeavoring, under some new Commissioner, to obtain a reversal of the sentence. If the patentee refuses to adopt the remedy given by the law, and substitute one of his own making, he does so at his peril; and when he applies again it is as much the duty of the Commissioner to protect subsequent *bona fide* inventors and the innocent public against his laches as to protect him against the errors of former examiners.

The remarks of Chief Justice Cartter, in Goodyear & Bacon *vs.* Hills, 3 Fisher, 134, in commenting upon the Cummings patent, are strongly in point. It is to be noted that although in this case the second application had been made eight years after the first, yet that the first had never been withdrawn. Judge Cartter says: "The law-makers have admonished inventors and the public that if before an application they suffer more than two years to elapse in the use of the invention they shall absolutely forfeit all right and title thereto. It is true the legislative admonition relates to the period preceding the application. But, it appears to me, as far as the court can be guided by its own judgment, that the inventor is left under the dominion of common-law principles in regard to any laches by which the application may be followed. Is it the law that because an inventor files his application, which is refused by the office, he may sleep upon his rights indefinitely, and that at any period in his lifetime, or that of his representatives, the application may be revived as against the public? I think not. *Prima facie* I think he would have to show a reason why he should be so permitted. The judgment of condemnation by the office advertises to the country, at least, that he stands in no better position than before the application was made. The country is advised, by the deliberation of the only tribunal provided by law for the ascertainment, at that stage of the invention, of his right—that he has none. More especially is he himself advised of that fact, for he is a party to the proceedings, and more immediately damnified by the rejection of the application. That rejection would at least be regarded in the logic of equity as a notice to him to proceed with diligence to traverse and reverse the judgment of the office."

In Rich *vs.* Lippincott, 2 Fisher, 1, Mr. Justice Grier says in his charge to the jury: "'If you find that the application of 1836, renewed in 1837, was for this same subject-matter now patented, and if such application *was not withdrawn* by Fitzgerald, but the delay was caused by the conduct of the Commissioner of Patents in refusing to grant the patent for the same invention since patented, then

Fitzgerald should not be considered to have abandoned his invention to the public. On the contrary, if you believe that the application of 1836 and 1837 was not for the same invention with that patented, and, therefore, was refused by the Commissioner, *or was withdrawn and abandoned* by the applicant, and continued so until Enos Wilder got up an application for the present patent, and in the meanwhile the invention had gone into public use for more than two years, then you will find this point for the defendants."'

See also Bell *vs.* Daniels, 1 Fisher, 372. Mr. Justice Fisher, who now sits in appeals from this office to the supreme court of this District, has, in the late case of Rowley *vs.* Mason, made a decision, the reasoning of which logically leads to the conclusion at which I have arrived in the present case. If the applicant had been put into interference with one of the eighteen inventors who have shown his device in their patents, and had attempted to prove an invention made eight years before and dropped, he would, under the authority of that case, be held to have abandoned his invention. *A fortiori* must this be so when we find that, instead of using diligence to obtain a patent, he deliberately and formally withdrew his application from the office and gave no sign of life for eight years, while eighteen patents were granted, more or less affecting his rights. While it need not be asserted that the present applicant was setting a trap for these subsequent patentees, it is obvious that to sustain the present application would be to offer strong inducements to others to set such traps hereafter.

The decision of the board of examiners-in-chief is affirmed.

SAMUEL S. FISHER,
Commissioner.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the decision of the supreme court of the District of Columbia in the matter of the application of John W. Cochran for improvement in breech-loading fire-arms.

In testimony whereof I, M. V. Montgomery, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 12th day of March, in the year of our Lord one thousand eight hundred and eighty-six, and of the Independence of the United States the one hundred and tenth.

[Seal Patent Office United States of America.]

M. V. MONTGOMERY,
Commissioner.

Appeal from the Decision of the Commissioner.

In the Matter of the Application of JOHN W. COCHRAN for Letters Patent for Improvements in Breech-Loading Fire-Arms.

Cochran made his original application in January, 1859. It was

rejected in February of the same year, and in February, 1860, a year after his rejection, he withdrew his application and had refunded to him by the office the sum of $20. In May, 1868, he filed a new application for substantially the same invention. It contained three claims. The third was allowed, but the first and second were rejected by the Commissioner, who states the question before him to have been this: "Can an inventor withdraw his application, make no effort to renew it for eight years—during which time the subject-matter of the invention has been incorporated into the substance of many subsequent inventions—and then file a new application and obtain a patent which, to support the novelty of the invention, shall relate back to the first application."

In his answer to the reasons of appeal the Commissioner calls my attention "to the fact that the decision of the primary examiner is based upon the question of abandonment," and further adds that "the reference given by the primary examiner refers only to patents subsequently granted as bearing upon the question of public use." I therefore infer that the Commissioner bases his decision of rejection upon two grounds, to wit: first, that he considers the withdrawal of Cochran's application as an acknowledgment of a want of patentability of his claim; and, second, that his lying by for eight years without renewing his application whilst the subject-matter of his invention was from time to time becoming incorporated in other patents is to be construed as either such laches on the part of Cochran or as such a public use of his invention by his consent as to defeat his present claim.

There are two questions to be considered: First, did the withdrawal of his first application, "*per se*," amount to an abandonment of his claim? and, second, if it did not, then does the superadded fact that the office granted subsequent patents embodying his invention therein amount to an abandonment? It is intimated by the Commissioner that the withdrawal of the first application did amount to an abandonment, because it was Cochran's duty to have prosecuted his application to a decision by the ultimate tribunal. I do not so regard it. In my opinion, the spirit of our patent laws, and indeed their letter, simply requires that an inventor when he has discovered something which is novel and useful in the arts to divulge to the world through the medium of the Patent Office the nature and character of his invention, and, having done so, a right has accrued to him to have his letters patent for that invention upon the payment of the price stipulated by the law, which right, when once accrued, is not barred by any act of limitation. It would be a hard ruling indeed if an inventor who has thus promulged his discovery should be debarred the benefit of it for all time simply because he had reposed such confidence in the knowledge and integrity of the office as to submit to its decision in rejecting him for want of novelty, as was the case in the original application. Cochran was in no fault in making known his discovery in the first instance; it was the fault of the office to reject his claim and afterwards to give the benefit of his discovery to eighteen subsequent applicants. In relation to the second point it was not

Cochran's fault that other subsequent applicants should have his discovery embodied in their letters patent. The act of the office in doing this was not his act, and it cannot be said that the invention was thus put in public use with his consent.

The case of Rowley *vs.* Mason was altogether different from this case. There Mason having made an invention secreted it and took no step whatever to give the world the benefit of it until after nine years, and then only after a subsequent and independent inventor had invested large sums of money in the manufacture of the subject of the invention and had offered it to the public by sale and by his application for letters patent.

In this case Cochran promptly divulged the secret of his discovery, for which the office refused him his just reward when applied for and afterwards bestowed it upon others, and now wish to plead that wrongful act for which the office only was in fault in bar of his just claim, offering no other cause therefor than that Cochran was not sufficiently pugnacious and persistent to fight the office through to the bitter end.

I am the more confident in these views because the board of examiners-in-chief allowed one of the claims of the applicant, and their decision is in all respects affirmed by the Commissioner. It seems hardly consistent to apply the doctrine of abandonment or lack of diligence or laches to a portion of the applicant's invention without applying it to the whole of it.

I am therefore of the opinion that the Commissioner has erred in deciding that Cochran had abandoned his application by the withdrawal of his first application, and had forfeited his right to a patent for want of diligence in prosecuting his claim for letters patent. For these reasons the decision of the Commissioner is reversed.

GEO. P. FISHER,
Jus. S. C. D. C.

Dec'r 1, 1869.

A true copy.
[SEAL.] Test: R. J. MEIGS, *Clerk.*

118-22

[2-175.]

DEPARTMENT OF THE INTERIOR,

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the files of this office of the drawing in the matter of the application filed January 11, 1859, by J. W. Cochran, for Improvement in Breech Loader.

In witness whereof, I, M. V. Montgomery, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 15th day of October, in the year of our Lord one thousand eight hundred and eighty-five, and of the independence of the United States the one hundred and tenth.

[SEAL.]

M. V. MONTGOMERY,
Commissioner.

J. M. Cochran,

Breech Loader.

Filed Jan. 11, 1859.

Fig 3.

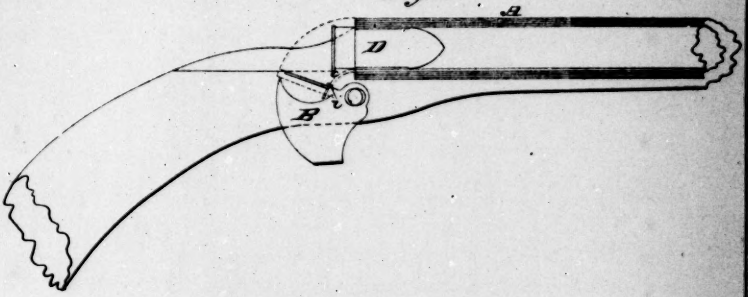
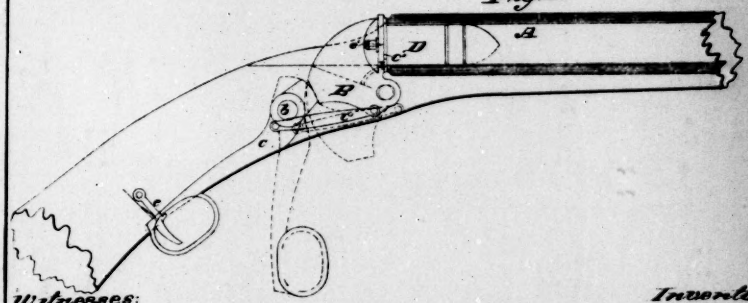


Fig 2

Fig 1



Witnesses:

A. B. Howe

A. Marks

Inventor:

J. M. Cochran

118-22

In the Supreme Court of the United States.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY ET AL., APPELLANTS,

vs.

WHITNEY ARMS CO. ET AL., APPELLEES.

1132

Upon the annexed affidavit and the consent of counsel for both parties hereto, the appellants respectfully pray that this cause may be docketed as of the date when the record therein was filed in this court, and that the position of the cause on the docket may be advanced, as to the court may seem just.

UNITED STATES RIFLE AND CARTRIDGE COMPANY,
By FREDERIC H. BETTS,
Counsel.

SUPREME COURT OF THE UNITED STATES.

UNITED STATES RIFLE AND CARTRIDGE COMPANY *et al.*, Appellants,
vs.
WHITNEY ARMS COMPANY *et al.*, Appellees.

CITY AND COUNTY OF NEW YORK, *ss:*

Frederic H. Betts, being duly sworn, says: I am of counsel for the appellants, and was counsel for such parties in the court below.

The record in this case was duly *recovered* in this court on May 5, 1879, and I supposed that the case had been regularly docketed.

I did not learn that the case had not been docketed until about the time when the present term of this court opened, at which time, supposing that appeals of the date when the present appeal was taken would shortly be reached, I commenced to prepare my brief, but finding upon examination of the docket that this cause did not appear upon it, I wrote to the clerk of this court to learn the reason that said case did not appear upon the docket, and was then for the first time informed that the docketing had been withheld because no bond to secure the clerk of this court for his fees had been filed.

I immediately sent a form of bond to my clients, and the same was promptly signed, filed, and approved.

I also wrote to Mr. Benjamin F. Thurston, stating the facts, and asked for his consent that the cause might be docketed as of the date of receipt of the record by the clerk of this court, which he willingly assented to, and I annex his assent.

I respectfully ask that this cause may be docketed as of the date when the record was received, May 5, 1879, or as of such

later date as to the court may seem just, and which will give to the parties the benefit of an early hearing.

FREDERIC H. BETTS.

Sworn to before me this 20th day of November, 1882.

[SEAL] THOMAS HUNT,

Notary Public, New York County and State.

SUPREME COURT OF THE UNITED STATES.

U. S. RIFLE & CARTRIDGE Co.
vs.
WHITNEY ARMS Co. *et al.*

It is hereby consented that this case may be docketed in this court as of the date when the record of the case was received, viz., May 5, 1879.

BENJ. F. THURSTON,
Counsel for Appellee.
FREDERIC H. BETTS,
Counsel for Appellant.

To the Clerk of the Supreme Court of the United States:

Please enter my appearance as counsel for the appellee in the above-entitled case.

BENJ. F. THURSTON.

[Endorsed:] Supreme Court U. S., 1882, October term. No. 1132. The United States Rifle & Cartridge Co., app't, *vs.* The Whitney Arms Co. *et al.* Motion to docket cause *nunc pro tunc* or to advance. Filed 22d November, 1882.

Supreme Court of the United States,

OCTOBER TERM, 1885.

No. 157.

UNITED STATES RIFLE AND CARTRIDGE CO. and E. REMINGTON & SONS,
Appellants,

AGAINST

WHITNEY ARMS CO., Eli Whitney, President, and ELI WHITNEY.

BRIEF FOR APPELLANTS.

Statement of the Case.

This is a suit in equity, brought to recover for infringement of the original Letters Patent granted to John W. Cochran, May 7th, 1872, for improvement in breech-loading fire-arms, No. 126,446.

The appellant, the United States Rifle and Cartridge Co., is the owner of the said letters patent, and the appellant, Messrs. E. Remington & Sons, are the exclusive manufacturing licensees under it.

No dispute is made as to the title to the patent.

The defendants are charged as infringers of the patent.

The bill was filed March 9th, 1874 (p. 10), alleging the grant of the patent and the infringement in the usual form.

The defendants filed their answer June 8th, 1874 (p. 11), alleging that the patent of Cockran was invalid, the invention having been previously described in several patents named.

It also alleges that the invention had been in public use or on sale for more than two years prior to May 6th, 1868, and had been abandoned to the public.

In answer to the allegation of infringement, the answer contains only the following statement:

"And the defendants further severally say that they deny having ever done any *wrong* or *injury* to the said complainants, and that they have never infringed any of his *rights*, and they respectfully submit to this Honorable Court that the plaintiffs have no right to any injunction or other relief prayed for in said bill." (The italics are ours.)

Replication was filed June 27th, 1874.

Proofs were taken by both parties, and the case came on for a hearing, before his Honor Judge SHIPMAN, on the 7th, 8th, 9th and 10th of June, 1875 (p. 15).

On January 22d, 1877, the Court filed an opinion dismissing the bill on the ground that the patentee had abandoned the invention to the public (p. 194).

Thereupon a decree was made dismissing the bill (p. 200). From this decree the complainants appealed to this Court (p. 1).

The Reasons of Appeal.

1st. The Court below erred in not holding that Cochran was the first and original inventor of the improvement patented to him; that improvement being shown and described by said Cochran in a rejected and withdrawn application, filed by him January 11th, 1859.

2d. The Court below erred in not holding that the withdrawal by said Cochran of his application filed January 11th, 1859, was, and could be construed to be nothing more than an abandonment of *that application*, and that notwithstanding the withdrawal of said application, said Cochran had a right at any time before the invention went into public use for more than two years, with his consent and allowance, to present a new application and obtain a valid patent for his invention.

3d. The Court below, having held (and the fact being) that there was "no adequate evidence of public use by any one for two years "preceding the date of the final application" of Cochran, filed May 16th, 1868 (p. 198, fol. 394), should have held that a valid patent could have been obtained on the renewed application of May 6th,

1868, notwithstanding the rejection and withdrawal of the application of January 11th, 1859.

4th. The Court below erred in not holding that no intermediate intervening rights had accrued between January 11th, 1859 and May 6, 1866, which should or could bar the right of Cochran to the patent granted to him.

5th. The Court below erred in not holding that the letters patent granted to Cochran on May 7th, 1872, could only be invalidated by showing that one of the causes of invalidity prescribed by the statute existed; and that Cochran being the prior inventor, and having never abandoned or forfeited his invention, his patent was valid.

6th. The Court below erred in not holding that the mere failure of Cochran to renew his application filed January 11th, 1859, and withdrawn, did not work a forfeiture of his *invention* so long as his device was not in public use or on sale for more than two years prior to the renewal of his application; and the mere fact that said Cochran, in absence of any such intermediate use or sale devoted his attention to utilizing other inventions (from which there was a more immediate prospect of pecuniary receipt), could not be deemed to have abandoned his invention.

7th. The Court below erred in not holding that Cochran, after the rejection and withdrawal of his original patent filed January 11th, 1859, had a right to devote himself to the prosecution and development of other inventions, and that no inferences of abandonment of the invention described in the application of January 11th, 1859, could be drawn against him, in absence of proof of an express intention to abandon, or proof of more than two years public use or sale of the invention, or of public use and sale of the same with his consent and allowance; and that if he renewed his said application within less than two years from the beginning of any public use or sale of the invention by others, he was entitled to a patent therefor.

8th. The Court below erred in not holding that the 35th section of the Act of Congress of July 8th, 1870, removed any disability which might otherwise have prevailed by reason of said Cochran having withdrawn his application of January 11th, 1859.

9th. The Court below erred in not holding that said Cochran, having renewed his application of January 11th, 1859, or filed a new one for the some invention, within the six months allowed by the 35th section of the Act of July 8th, 1870 (for the renewal of applications which had been rejected or withdrawn, or for filing new applications for the same inventions), and the Commissioners of Pat-

ents having allowed his said renewed application and granted a patent therefor, he must be conclusively presumed to have not abandoned his original application.

10th. The Court below erred in not holding that there was, therefore, no proof of abandonment in fact of either the *invention* or of the *application* of Cochran, and no proof of public use or public sale of the invention for more than two years prior to his renewed application; and the 35th section of the Act of July 8th, 1870, having removed any effect upon the rejected application of January 11th, 1859, of the withdrawal of the same, provided the Commissioner allowed the said application and granted the patent, the Court should have held that the said letters patent were lawfully issued and were valid.

11th. The Court below having, in substance, held that Cochran was the original inventor, and that the defendant had infringed his patent, erred in not holding that the said letters patent were valid, and that the plaintiff was entitled to a decree for an injunction and an accounting.

12th. The Court below erred in not holding that the letters patent of the complainant were valid, and infringed by the defendants, and in not rendering a decree for an injunction, account and assessment of damages in favor of the complainant.

FIRST POINT.

The nature of Cochran's invention as described and claimed in the 1st claim of his patent. Its limited character but great value.

The specification and drawing of the patent will be found at pages 182 to 185 of the record. The description of the breach-loading firearm therein contained is clear and simple. Proof of infringement is limited to the first claim of the patent, so that it is only necesssry to examine the invention so far as it is defined and claimed in that claim.

The claim reads as follows:

"*1. The combination, in a breech-loading gun, of a breech block,*

" *pivoted so as to swing backward and downward in the arc of a cir-*
" *cle around a fixed point, with a brace other than the nose of the ham-*
" *mer pivoted to the frame in rear of said block, said brace being ar-*
" *ranged to swing upward in unlocking the breech, substantially as*
" *described.*"

This claim is for a combination of three elements having certain definite functions and movements and relations to each other, viz.: (1) A gun having its cartridge chamber open at the rear. (2) A breech block to close the rear of the cartridge chamber. (3) A brace to enable the breech block to resist the recoil. These three elements are combined with each other in a peculiar manner, and their construction and functions may be enumerated as follows:

1. The GUN.—The barrel is *stationary*, and is the cartridge chamber. It is " constructed in the usual style of this class of " arms, the *rear* end of the barrel being left entirely open." It is, therefore, a " breech-loading firearm," for it loads by inserting the cartridge at the *rear* end or " breech " of the barrel, pushing it towards the front or muzzle of the barrel. " The " stock of the gun is made of any suitable style to adopt it to " the working parts of the arms;" the hammer and firing pin, and other well known parts of the gun, are not very particularly described, that not being necessary.

2. The BREECH BLOCK.—This breech block has several specified functions and movements:

(*a*) The breech block is made " of suitable size to *en-*
" *tirely cover and close the breech end* of the *barrel* when turned
" up into position." This necessarily implies the fact that the breech block is not the *cartridge chamber*, but *closes* the cartridge chamber, backing up the cartridge and resisting the recoil. It may have a shallow recess to fit over the " rear " end or flange of the cartridge when the breech is closed," but, of course, this in no sense makes it the cartridge chamber.

(*b*) The breech block is " pivoted so as to swing backward " and downward in the arc of a circle around a fixed point."

3. The BRACE.—This has several specified peculiarities:

(*a*) The brace must be something " *other* than the nose of " the hammer."

(*b*) It is "pivoted to the frame, in rear of" the breech block.

(*c*) The brace is "arranged to swing *upward* in unlocking the breech."

(*d*) The function of the brace is for "*bracing* the breech "block in place, when closed, *so as to withstand the pressure* "*of the gasses evolved in the discharge of the arm.*"

It will be understood, therefore, that the Cochran patent does not claim every combination of the breech block, and brace, and gun; indeed several such were expressly disclaimed (p. 20); but one certain *specified* kind of gun having a certain *specified* breech block with a *definite* function, arrangement and location, and certain *specified* brace having *peculiar* characteristics. The claim, therefore, is of a limited character, but its value is very great. The advantages of all these features of the Cochran organization are clearly stated by the experts (see E. S. Renwick, Record, p. 40, qs. 18, 19 and 20; Hicks, Record, p. 49, qs. 26, 27 and 28), and are in substance admitted by the defendant, Eli Whitney (Record, p. 129, qs. 54–105).

Thus, Mr. Hicks states the following advantages of the Cochran organization, which, though it has a short under lever as shown in the patent, yet by a slight modification of the form there shown:

1. It permits "top action" in the arm, and this is desirable because—

(*a*) It allows of a much shorter motion in the parts, and they may all have substantially the same kind of motion.

(*b*) It admits of a fixed trigger-guard.

(*c*) It allows the arm to be used when the operator is lying down.

(*d*) It makes a safer arm, as not being so likely to be caught and moved by brush or branches or clothing as an under lever.

(*e*) It makes a more symmetrical and stronger arm.

(*f*) It entails a less number of parts and those more simple in construction.

2. The advantages of having the supporting brace move upward and backward are the advantages of which have been shown above.

(*a*) It admits of a top action in the arm.

(*b*) The brace has a shorter motion and is entirely within the breach-frame.

(*c*) It may be combined with the hammer-motion, thus dispensing with one movement of the hand.

(*d*) It occupies less room in the frame.

(*e*) The breach-pin may be made much stronger and thicker without interfering with the brace.

(*f*) It does not make an opening to be filled with dirt.

3. The advantages of having a supporting brace other than the nose of the hammer are :

(*a*) The firing-pin may be in a line with the axis of the barrel.

(*b*) The brace may be thrown nearer its centre of motion and thus be made stronger with less weight of metal.

(*c*) Each part has a single function only to perform, and therefore can be made in the best way to effect that purpose.

A few questions and answers from the deposition of the defendant Whitney will illustrate this point.

They are selected from among his, because an examination of Mr. Whitney's deposition will show that he studiously endeavored to avoid making the omissions which truth compelled him to make.

These admissions bear upon the value and utility of the several features of construction embodied in the Cochran gun.

54. x-Q. "Do I understand you to mean that your opinion is "favorable to a gun in which the support of the breech block is not "in the line of fire; and if so, why?"

A. "I have a favorable opinion of some guns constructed as "suggested in the question, provided that the breech is at all times "locked so that the recoil shoulder, though not in the line of fire, "is ready to receive the recoil when the breech is closed."

55. x-Q. "Why do you prefer a gun in which the support of the "breech block is a brace, pivoted behind the breech block and be-"low it—below the line of fire—instead of one where there is a "direct support in the line of fire, other things being equal?"

(Question objected to by defendant's counsel as assuming a preference on the part of the witness which he has not yet expressed.)

A. "It is very obvious that a gun supported directly in the line "of fire has an advantage over a gun supported in any other way; "but it is convenient sometimes to construct a gun wherein the "support of the breech block when closed is not directly in the "line of fire, owing to other qualities which it is important to intro-"duce in a gun, namely, top-action, short motion in opening and

" closing the breech, thereby facilitating the manipulation of the " arm when used."

" 61 x-Q. In an arm which has a breech block pivoted below the " barrel, and swinging backwards and downward in opening, which " arrangement *admits to the shortest motion*—one in which there " is a solid direct rear support in the line of fire, or one in which " there is a movable brace below the line of fire?"

" A. *One in which there is a movable brace.*"

" 69 x-Q. Will you please state what the advantage is in using a " brace other than the nose of the hammer?"

" A. The advantage is that *it leaves the hammer free from* " *performing the function of a locking brace*, provided that the " brace is independent of the hammer in its operations and " functions."

" 70 x-Q. Is it a correct principle in fire-arms, where certainty " of action is required, that each piece or part should have only " one function to perform?"

" A. *The best breech block fire-arms are so constructed*, though " in some cases a piece may perform two functions or more without " injury to the arm."

" 80 x-Q. Is there *another advantage* in having the locking " brace other than the hammer that the hammer *can be arranged* " *to cock* without unlocking the breech?"

" A. Yes."

" 85 x-Q. Do you consider the arrangement of the brace *so as to* " *swing upward in unlocking* the breech has any advantage over an " arrangement of the brace so as to swing downward in unlocking " the breech?"

" A. It is, provided it is not rigidly attached to a lever under- " neath the arm."

" 86 x-Q. You consider then the arrangement of the brace to " swing upward in unlocking *as advantageous in itself*, but the " method of unlocking it by the addition of the lever underneath " the arm is a poor one?"

" A. I do, provided that the arm is so constructed that the brace " may be operated by means of a spring and a lever independent of " the brace operated from above or on top of the arm, and provided " that the different parts are so arranged that the brace shall be " firmly locked by the automatic action of the brace as soon " as it is closed by hand, by means of the top lever aforesaid."

" 87 x-Q. Will you please confine your answer to the features

" which you are interrogated without incumbering and obscuring it " by additional features which you think your gun has the advantage " of possessing?"

(Question repeated.

" A. I do consider the method of swinging the locking shoulder " upward as advantageous, when properly connected with a practi- " cal improved method of bringing action to the locking shoulder " for locking and unlocking the breech, for the brace itself without " any method of operating it for the purpose above mentioned " would be useless."

" 102 x-Q. What advantage is there in *pivoting the brace in* " *rear of the breech block* over pivoting it in front of the breech " block?"

" A. *It forms a more efficient gag or stop* against the movement " of the breech from the effects of the gas at the time of firing the " piece."

It is unnecessary, therefore, to discuss at length the utility of the several features of Cochran's combination, for the defendant distinctly admits it, and, as he has used them, their *use* necessarily and conclusively implies *utility*.

Hayes vs. Sulzor, 1 Fish, 532.

Whitney tried to get a license under the Cochran patent as soon as it was issued, and offered to pay a royalty of fifty cents a gun to be permitted to use the invention (Hovey, p. 63, Q. 4; Whitney, p. 125, x-Q. 25).

SECOND POINT.

The invention of Cochran, described in his patent, was accurately and sufficiently described in his application filed January 11th, 1859, and that date, therefore, must be taken as the date of his invention.

(1) An examination of the specification accompanying the application filed by Mr. Cochran on the 11th day of January, 1859

(pp. 152–155), shows the invention to be there described, and that application, therefore, is competent and sufficient evidence of the making of the invention at least as early as that date.

On this point there is no dispute. It is sufficient to quote only the evidence of Eli Whitney, the president of the defendant company, and himself, personally, a defendant.

He is asked *by his own counsel* (p. 120, Q. 19):

"Q. 19. Please look at the file wrapper and contents belonging "to the rejected application of J. W. Cochran, filed January 11, "1859, and state whether the description of the arm therein con- "tained and the drawing connected with said description contain "the invention set forth and shown in letters patent to John W. "Cochran in suit in this case?

"A. I think that the file wrapper and contents do set forth the "invention of Cockran as patented in 1872. I consider it the "same."

The description and drawing being clear and sufficient, they are adequate evidence of the making of the invention at the date of their filing.

In such a case the rule laid down by this Court in *Loom Co. vs. Higgins*, 105 U. S., 580, applies.

"An invention relating to machinery may be exhibited either in "a drawing or in a model, so as to lay the foundation of a claim to "priority, if it be sufficiently plain to enable those skilled in the "art to understand it."

In *Henderson vs. Reese*, 25 O. G., 191, the first application had been filed by Henderson in 1876. It had not been prosecuted and a new one was filed April 27th, 1881. The Commissioner said:

"Henderson's application of 1876 may be used to show, if it "does show, that he had made the invention here in controversy at "that time."

This application contained four claims, as follows:

"1st. The excentric clutch or stop B constructed and suscep- "tible of being operated as herein set forth.

"2d. I claim the recess in the face of the clutch for receiving "the flanged end of the cartridge, as herein set forth.

"3d. I claim in combination with the recess in the clutch,

" the catch or dog *l* for seizing the flange of the cartridge, as de-
" scribed.

" 4th. I claim the combination of the lever C, or its equivalent,
" and the clutch B, with the barrel, as herein set forth."

All of these claims were inartificially worded, and are so broad in scope as to require favorable construction to limit them to the real invention of Cochran, as now patented by him, though probably this would be done by the Courts, if necessary.

They did not, however, make the peculiarities of location, function and direction of movement of the parts clear to the Patent Office.

It will be understood upon examining the specification and drawing that " the eccentric clutch or stop B " is what is now called the " breech-block," and that the " lever C," or, as it is called in the de-
" scription, the eccentric lever or *cam*," is what is now called the " brace."

The first claim of the original specification is much broader than any that is now made.

The fourth claim of the original specification mentions substantially the elements of the first claim of the patent as issued, but in the original fourth claim the combination was claimed broadly and without the necessary limitations as to the location and movements of the parts, which are now introduced, such as that the breech-block must "swing backward and downward around a fixed point," and that the " brace " must not be the nose of the hammer, and that the brace must be pivoted to the frame in the rear of the breech-block.

On February 8, 1859, the application was rejected (p. 155), on reference to Sears' rejected application of 1855 (which has not been put in evidence), and Lee's patent of April 27, 1858.

Lee's patent was put in evidence by defendant, and will be found at p. 189–171.

It technically meets both the first and fourth claims of the application as they were broadly worded, although the arrangement of parts and their mode of operation is quite different from and inferior to Cochran's (Hicks, p. 48, Q. 23).

THIRD POINT.

The courses open to Cochran upon the rejection of the claims of his application of 1859.

Mr. Cochran had an absolute right to take one of three courses which were open to him upon the rejection of his application of 1859, and he could take either of said three courses without prejudicing his right to a patent:

If the rejection was wrong,

(*a*) To appeal;

If the rejection was right,

(*b*) To amend, or

(*c*) To withdraw the application, and within such time as the statute allowed to him (viz., within two years of any public use) to file a new one.

The latter course is the one which he chose to adopt, and the application was withdrawn February 20, 1860. It was a course which, as we shall now submit, he had a perfect right to adopt without invalidating his right to a patent, either on a renewal of his original application or on a new application, provided he reapplied in time.

FOURTH POINT.

Cochran's withdrawal of his original application of 1859 was not an abandonment of his invention.

The withdrawal of an application for a patent is not necessarily an abandonment of such application, and still less is it an abandonment of the invention itself.

The question presented in this case is in some respects a novel one.

In all the cases, so far as we can find, where an inventor has filed two or more applications for a patent, with greater or less intervals between them, and the question of the abandonment of the invention has come before the Courts and has been decided adversely to the patentee, there has been a long continued *public use* of the invention for more than two years intermediate the two applications. In some of the cases the first application had not been formally withdrawn, but had been neglected for a long series of years, and a new one filed, or the prosecution of the old one resumed only after many years of public use.

In all such cases the public use worked a statutory abandonment or forfeiture of the invention, unless the two separated applications could be connected with each other by satisfactory explanation of the circumstances which caused the delay.

The effort on the part of the patentee in all such cases was to explain the delay occurring between the dates of the two applications, so as to connect them into a continuous proceeding, and thereby avoid the otherwise fatal objection due to the two years' public use prior to the last application.

Thus in *Bevin vs. East Hampton Bell Co.* (9 Blatchford, 50), an application had been made in 1852, rejected two months afterwards, and all papers, except one drawing withdrawn and never returned. No further action was taken for ten years when a new application was filed.

During that time the invention went into open and notorious use in his own neighborhood and under his own eyes, and so continued for ten years without remonstrance.

In *Marsh vs. Sayles*, 5 Fish, 610, an application had been filed by Marsh in 1851, and rejected and withdrawn in the same year. No new application was filed until December, 1869.

It appeared that in the interval, in 1859, a patent for the same invention had been granted to another, and *infringers had arisen*, who had been prosecuted—thereby *showing that the invention had been in public use.*

Marsh knew of the facts in 1865, but deliberately waited until 1869 before renewing.

The Commissioner refused the application, determining under section 35 of Act of 1870, "as a question of fact," that the application had been abandoned. The suit was brought to compel him to issue it.

The Court sustained his decision.

In *Consolidated Fruit Jar Co. vs Wright*, 4 Otto, 92, the invention was complete in 1859, but no application filed until 1868. There was proof of public use of the invention for more than two years prior to the application.

In *Planing Machine Co. vs. Keith*, 101 U. S., 484, the first application had been filed February, 20, 1849. It was withdrawn by the solicitor in October, 1852, and the inventor knew of the withdrawal as early as September, 1854 (p. 486). A renewed application was filed December, 1870 (*Id.*). From 1854 to 1870, *i, e.*, for upwards of sixteen years "the improved device had been in common use" (p. 483).

"Hundreds of other machines containing the same device were "manufactured and sold in Boston between 1854 and 1870, and were "frequently seen by Mr. Woodbury calling forth no remark for him "that they were invasions of his rights" (p. 487).

The invention was held to have been abandoned. The Court adverted to the long delay in renewing the application as indicating an intention to abandon, but laid stress upon the fact that "this is especially the case where the invention *has gone into public use* for a long series of years."

In *Rich vs. Lippincott*, 2 Fish, 1, the first application had been filed in 1836, and renewed in 1837. The application on which the patent was granted was filed in 1839.

Judge GRIER charged the jury, "If you believe that the applica-"tion of 1836 and 1837 was not for the same invention with that "patented, and, therefore, was refused by the Commissioner, or was "withdrawn and abandoned by the applicant, and continued so "until Enos Wilder got up an application for the present patent, "AND in the meantime the invention had *come into public use* "*for more than two years*, THEN you will find this point for the de-"fendant."

In *Weir vs. Morden*, 29 Off. Gaz., 83. The first application had been filed October, 1877. It was allowed, but was forfeited for non-payment of the final fee. A new application was filed February, 1879. The invention "had been in public use for more than two years" prior to the last application. The patent was held void.

In all these cases the effect of more than two years' public use prior to the last application was considered.

In none of them, nor in any other case, has it ever been held that the withdrawal of one application and the filing of a new one *before*

two years' public use had occurred could be construed to be an abandonment of the *invention*. The first application, *as an application*, might be abandoned, and the patent based solely on the last application, but the mere withdrawal, or even final and absolute abandonment of a former application is not fatal to the patent, if the last application is filed in time.

Thus in *Pelton vs. Waters*, 7 Off. Gaz., 425 (EMMONS and SWING, JJ.), the Court said:

"If intermediate the first and second application the patentee "manifests an actual intention to abandon the first, *his patent will* "*have relation to the last one only.*

"His actual intention severs the proceeding. The law deems "the first application terminated and as bearing no relation to the "patent *which rests solely on the last one.*"

In *Clark vs. Scott*, 9 Blatch, 201 (BLATCHFORD, J.), the patentee's first application was filed August 6th, 1866, rejected August 23d, 1866, and nothing further done until May 1st, 1869. The answer of the defendant averred that the patent was void, because the complainants "abandoned said application for over two years, while "knowing that said Florence Manufacturing Company were making "and using this abandoned invention."

The Court said, "The answer does not set up any abandonment "of the invention to the public, nor does it set up the defense that "the invention was in public use or on sale with the consent or "the allowance of Duell for more than two years prior to his appli-"cation for a patent for it. The answer in the averment stated is "entirely frivolous. *An abandonment of an application amounts to* "*nothing*, unless it is in such wise as to become an abandonment of "the invention to the public."

In *Lindsay vs. Stein*, 20 Blatch., 270 (BLATCHFORD, J.), the first application had been filed by the patentee October 18th, 1874, it was rejected November 18th, 1874, and again in January, 1875. Nothing more was done upon it until April, 1878, when a new application was filed, upon which a patent was granted.

The Court held that under § 4894 of the Revised Statutes the first application was abandoned because not prosecuted within two years after its rejection, but the invention was not thereby abandoned, and a second application could be made.

The Court held that there was no satisfactory evidence of any public use earlier than January, 1877 (thirteen months before the last application), and sustained the patent.

In *Henderson vs. Reese*, 25 Off. Gaz., 191, the first application had been filed by Henderson in 1876. It had not been prosecuted and a new one was filed April 27th, 1881. The Commissioner said:

"After his former application had become abandoned by opera-
"tion of law, his present application was filed. *No doubt he had a*
"*right to file his present application*, but he cannot thereby revive
"the former application and attach the latter one to it. When an
"application becomes abandoned there is but one way in which it
"can be revived, viz., that provided for in the statute. Several
"cases have been called to my attention, all of which seem to agree
"with the views above expressed. *Henderson's application of 1876*
"*may be used to show, if it does show, that he had made the invention*
"*here in controversy at that time*, but for no other purpose."

Nor do the statutes provide that withdrawal or abandonment of an application is an abandonment of an invention. On the contrary, it is to be clearly inferred that a valid patent may be granted upon a second application, though a prior one had been in fact abandoned.

The Act of July 4th, 1836, provided that (§ 7):

"In every such case if the applicant shall elect to withdraw his
"application and relinquish his claim to the model he shall be al-
"lowed to receive back twenty dollars, part of the duty required by
"this act, on filing a notice in writing of such election to the Pat-
"ent Office, a copy of which, certified by the Commissioner, shall
"be a sufficient warrant to the Treasury for paying back to the ap-
"plicant the said sum of twenty dollars."

No penalty was imposed as a consequence of the withdrawal other than the relinquishment of the claim to the model.

The Act of March 3d, 1839 (§ 7), recognizes the distinction between the abandonment of the *invention* and forfeiture by two years' public use prior to the *application* in the following words:

"No patent shall be held to be invalid by reason of such pur-
"chase, sale or use prior to the application for a patent aforesaid,
"except on proof of abandonment of such invention to the public,
"or that such purchase, sale or prior use has been for more than
"two years prior to such application for a patent,"

The Act of March 2d, 1861 (§ 12) (12th Statutes at Large, 246), provided as follows:

"That all applications for patents shall be completed and pre-
"pared for examination within two years after the filing of the pe-

" tition, and in default thereof they shall be regarded as aban-
" doned by the parties thereto, unless it be shown to the satisfac-
" tion of the Commissioner of Patents that such delay was una-
" voidable, and all applications now pending shall be treated as filed
" after the passage of this act."

It is to be noted that this section says nothing about the abandonment of an "invention;" it is "they," that is the "applications" that are to be "regarded as abandoned" if the delay in completing them is not explained.

The Act of March 3d, 1863 (Twelfth Statutes at Large, 796), provided as follows:

" (§ 3.) That every patent shall be dated as a of day not later than
" six months after the time at which it was passed and allowed, and
" notice thereof sent to the applicant or his agent. And if the final
" fee for such patent be not paid within the said six months, the
" patent shall be withheld, and the invention therein described shall
" become public property as against the applicant therefor."

Here, for the first time, the forfeiture of control of the "invention" is made the penalty of not consummating the application by paying the final fee.

But this act seems to have been thought too severe, for by the Act of July 25th, 1864 (13 Statutes at Large, 194), it was provided as follows:

" That any person having an interest in an invention, whether as
" an inventor or assignee, for which a patent was ordered to issue
" upon the payment of the final fee, as provided in section 3 of an
" Act approved March 3d, 1863, but who has failed to make payment
" of the final fee, as provided in such Act, shall have the right to
" make the payment of such fee, and receive the patent withheld upon
" account of the non-payment of such fee, provided such payment
" be made within six months after the passage of this act."

It is to be noted that it extends the time for all payments for six months beyond its date.

The prior act, however, related only to applications which had been "passed and allowed, and not to rejected applications."

The extension of six months for paying the final fee was found to be an insufficient remedy, and accordingly in the following year, March 3d, 1865, the following act was passed:

(13 Statutes at Large, 533). That act provided as follows:

" That any person having an interest in any invention, whether
" as inventor or assignee, for which a patent was ordered to

" issue upon the payment of the final fee, as provided in section 3, " of an act approved March 3, 1863, but who has failed to make " payment of the final fee, as provided in said act, shall have the " right to make an application for a patent for his said invention, " the same as in the case of an original application, provided that " such application be made within two years after the date of the " allowance of the original application: *provided*, that nothing " herein shall be so construed as to hold responsible in damages " any person who has manufactured or used any article or thing for " which a patent aforesaid was ordered for issue. This act shall " apply to all cases now in the Patent Office, and also to such as " shall hereafter be filed.

This act expressly recognizes the right to make successive applications for patents, but merely provides that in the case of the forfeiture of the *allowed* application, a new application must be made within two years from the date of allowance.

This series of statutes from 1863 to 1865 do not relate, as will be observed, to rejected or withdrawn applications, but to allowed ones only.

Obviously where all questions are settled in the inventor's favor, the novelty of the invention ascertained, its utility certified, and nothing remains but the payment of a portion of the fee, much greater diligence is to be expected than in a case where nothing has been settled in behalf of the applicant, but he has been opposed and rejected by the Patent Office.

The Act of July 8th, 1870, (which was the act in force at the time of issue of the Cochran patent), contained the following provisions bearing upon this subject:

§ 23 provided as follows:

" That every patent shall date as of a day not later than six " months from the time at which it was passed and allowed and notice " thereof was sent to the applicant or his agent; and if the final fee " shall not be paid within that period the patent shall be withheld."

It is to be noted that this section *omits* the provisions of the Act of March 3d, 1863, which was in the following words:

" And the invention therein described shall become public property as against the applicant therefor."

The industrious omission of this express provision of the former statute must fairly be deemed to indicate that the penalty provided in it is no longer to be enforced.

This seems to have been the construction of the corresponding section of the Revised Statutes in *Henderson vs. Reese* (*supra*).

§ 32 provides as follows:

"That all applications for patents shall be completed and pre-
" pared for examination within two years after the filing of the peti-
" tion, and in default thereof, or upon failure of the applicant to
" prosecute the same within two years after any action therein, of
" which notice shall have been given to the applicant, they shall be
" regarded as abandoned by the parties thereto, unless it be shown
" to the satisfaction of the Commissioner that such delay was
" unavoidable."

Here, as in the case of the Act of March 2d, 1861, it is the "applications" and not the "inventions" that are to be regarded as abandoned.

§ 35 provided for the filing of a second application within two years after the allowance of original applications, which had become forfeited after allowance, in the same words as the Act of 1865; and expressly provides for the renewal of rejected or withdrawn application in the following words:

"That when an application for a patent has been rejected or
" withdrawn, prior to the passage of this act, the applicant shall
" have six months from the date of such passage to renew his appli-
" cation, or to file a new one, and if he omit to do either his appli-
" cation shall be held to have been abandoned. Upon the hearing
" of such renewed applications abandonment shall be considered as
" a question of fact."

Here the filing of new applications when previous ones had been rejected or withdrawn is expressly provided for and a time set in which the applicant shall have an *absolute right to do it*. The words are "An applicant *shall have* six months from the date of such pas-
" sage to renew his application or to file a new one.

And even if he omits to comply with the act, still it is only "his *application*" which is to be held to have been abandoned.

As bearing upon this point the rules of the Patent Office may be cited.

§ 483 of the Revised Statutes provides that:

"The Commissioner of Patents, subject to the approval of the
" Secretary of the Interior, may, from time to time establish regu-
" lations not inconsistent with law for the conduct of proceedings
" in the Patent Office."

We find that the Commissioner has made rules which concede the right to file successive applications, notwithstanding forfeiture or abandonment of earlier ones, and as sections 4894 and 4897 of Revised Statutes substantially reproduce the provisions of the Act of 1870 in regard to the time in which applications shall be completed and the forfeiture of applications by failure to pay the final fee, we may refer to such rules as bearing upon the proper construction of the similar provisions of the Act of 1870.

Rule 167 reads as follows:

"When a new application is filed in place of an abandoned or "rejected application, a new specification, oath, drawing and fee "will be required; but the old model, if suitable, may be used."

We submit, therefore, that the mere fact of withdrawal of the application of Cochran did not work an abandonment of his invention to the public. He still retained the right to renew that application at any time before the public acquired the right to use the invention by two years public use.

He was in no worse position for having filed an application showing his invention, though claiming it defectively, and then withdrawing such defective claim, than he would be if he filed no application at all.

There are various reasons why an applicant may abandon his first application, either by express withdrawal or by neglect to prosecute it.

It may be unsatisfactorily worded, its claims may be erroneously drawn, the inventor's pecuniary circumstances may prevent its prosecution for a time, and necessitate the return of a portion of the fee.

All of these circumstances may render the withdrawal of a particular application necessary or desirable.

But such course of itself does not dedicate the invention to the public.

The filing of the application is a secret transaction between the inventor and the Patent Office until it is allowed.

It remains a secret transaction after the application has been withdrawn.

Until allowed and a patent granted upon it, it forms no bar to a patent for the same invention to a subsequent inventor.

Cornplanter Case, 23 Wallace, 232.

Its mere filing, unless prosecuted to a final issue, impairs no

right of the public or subsequent inventors, and hence its withdrawal confers no rights upon them.

It remains in the archives of the Patent Office simply as proof that the inventor had made the application at the time it was filed.

If it is clear and sufficient in its description and illustrations it may be referred to, just as any other drawing, as proof of the making of the invention by the inventor at the time of its date, and if it relates to a machine it will be regarded as sufficient evidence of the making of the invention.

Loom Co. vs. Higgins, 105 U. S., 580.

The withdrawal, coupled with other acts may be used as evidence tending to proof abandonment of the invention, but abandonment of an invention, subsequently patented, cannot be proved by the mere fact that an application exhibiting it had been once filed and then withdrawn, unless the inventor otherwise forfeited his rights to the public.

FIFTH POINT.

Mere delay in applying for a patent, or in prosecuting an application, is not of itself an abandonment of the invention to the public.

The abandonment of an invention by an inventor can only be accomplished in two ways, either

1st. Intentionally, as by a declared intention on his part to dedicate his invention to the public.

2d. By operation of law.

Intentional abandonment by the inventor must be accompanied either by his expression of intention to dedicate his invention to the public, or by conduct which the law construes to be an expression of such intention, and it is to be remembered that abandonment is not proved by a mere expression of an intention.

Pitt vs. Hill, 2 Blatch., 237.

There must not only be an intention but some act on the part of the inventor which is effectual to dedicate his invention to the pub-

lic, and some indication of the acceptance of his invention by the public.

Abandonment by operation of law can only be worked in the mode prescribed by statute, viz., by two years public use or sale prior to filing his application. The Act of 1836, section 15, enacted that it should be a defense to a patent that the thing patented had been in public use or on sale with the consent or allowance of the patentee before his application for a patent. Section 7 of the Act of 1839 expressly provided that no patent should be held invalid, except on proof of abandonment, or that such public use and sale had been for more than two years prior to the application.

Neither of these conditions existed in the present case.

(*a*) The original application of Cochran, as we have shown, was too broad in view of the prior state of the art, and therefore was properly rejected, and he had a right to withdraw such application, or even abandon it without imperilling his right to obtain a patent on a subsequent properly worded application.

In the absence of proof to the contrary, the law presumes that he reserves all his legal rights, and one of those rights was to renew his application at any time before his invention had been in public use or on sale for more than two years prior to his renewed application.

(*b*) He did, as a matter of fact, renew his application on May 6th, 1868, and unless the defendant can prove either, (1st), that there was an actual or intentional abandonment of the invention accepted by the public, as such, prior to this renewed application, or (2d), some equitable estoppel as between the inventor and this particular defendant which could render the enforcement of his patent improper, or (3d), public use or sale of the invention for two years prior to May 6, 1868, he was clearly entitled to receive a patent on such renewed application.

Neither of these conditions existed. On the contrary, the affidavits on file in the Patent Office on his renewed application of 1868 are pointedly to the fact that Cochran never intended to abandon either his application or invention (pp. 165–6).

SIXTH POINT.

Cochran's circumstances at the date of withdrawal of his original application fully explained and excused his withdrawal, if explanation is necessary, and also fully account for delay in renewing that application.

We should be doing an injustice to Cochran, if we rested this case upon the absolute legal right to renew an application within two years of the commencement of public use, for we believe that the record explains fairly the reasons of his action.

Cochran was wretchedly poor most of the time between the withdrawal of his first application and its renewal in 1868. (Ida Cochran, Record, p. 58; Helen Cochran Phillips, Record, p. 65). It is true that about 1866 he did, in fact, receive a considerable sum of money, which involved a journey abroad, but, as long as the public did not attempt to use or sell his invention, he was under no obligation to renew his application. The *mere possibility* of future public use did not carry with it any obligation to abandon other inventions, or spend money properly devoted to them in prosecuting an application for this invention.

This money, about $18,000, was received from the sale of some foreign patents (p. 111, Q. 6) to a Mr. Haldeman.

This sum was not all paid at once. The first payment amounted to $5,000 (p. 112, x-Q. 2) and thereafter in monthly installments of $1,000. Over the first payment, at least, he had no control for general purposes. Mr. Haldeman says, "My impression was that it "required that sum, and that he expended that sum in procuring "the English and Continental patents and preparing the guns used as models" (p. 115, Q. 2).

The date of any of these payments is not definitely fixed (p. 112, x-Q. 1). Mr. Haldeman speaks of them generally as running over the years 1865 and 1866 (p. 111, Q. 5), but it is doubtful whether it was not in 1866 and 1867, for it was in those years that Haldeman went to Europe about this business (Q. 8). Cochran's letter of November 8, 1865 (p. 82), shows that it was only then that he had made any contract, and that he would "be as poor as ever for the next six months," and his letter of November 16, 1865, shows that he then

had a great arrearage of debts to pay up (p. 82). In 1866 he appears to have been still poor (p. 60, fol. 105).

It would almost appear that one of his early thoughts, when he came into the possession of money, was the renewal of the application in question (Haldeman, p. 113, x-Qs. 18–25).

At all events it no where appears that at any time more than two years prior to the filing of Cochran's application in 1868, he was in anything but the most straitened circumstances, and if, as was the case, within a reasonable time, after coming into the possession of means, he did in fact renew his application, the Court will not regard a delay of a few months only as prejudicial to his rights, especially as he was, during a portion of that time, absent in Europe on legitimate business connected with another invention which had met with merited success.

It was not until the fall of 1867, after his last return, that the making of any guns involving his present invention was commenced. He acted promptly as soon as the emergency arose by filing his new application for a patent in the spring of 1868.

It is clearly shown, also, that even up to the time of his death in 1872, he continued in an embarrassed condition. His letters (as Judge SHIPMAN admitted) "tell a sad story of poverty" (p. 197, fol. 389), and he left judgments standing against him for large sums of money, which were only liquidated out of the money received from the present patent (p. 61, Qs. 18–21).

Cochran himself never received any compensation from his present invention until within a few days of his death. When he did renew the application, he only did so by assistance from others (p. 166, fol. 304); so that even if there was any obligation on his part to press his application before the invention had begun to be publicly used, which was not the case, his circumstances fully explain why he did not do so.

Notice must also be taken of the fact that between January, 1860, and May, 1868, seventeen patents appear by the record of the Patent Office to have been granted to a person by the name of John W. Cochran (p. 99, Q. 25). There is no proof other than the identity of name and a general statement in the affidavit of Cochran's, filed in the Patent Office (p. 166), that any of these were really granted to Cochran except that dated April 4, 1865. Cochran says in his said affidavit: "Although I have made many inventions since that time "(1860), for which letters patent have been granted me, *I have only* "*been able to obtain them through the kindness and assistance of*

"*others.*" Mr. Whitney says as to the gun of 1865 that "it was held in very high estimation by Cochran," and that after trials, before boards of army officers, it had received the approval of General Grant and other distinguished officers (p. 121, Q. 23–25).

Whitney says that he was "told" by a Mr. Howe and by Mr. Cochran that Cochran "*was to* receive a royalty of a dollar on a gun" on a contract with Howe for the making of ten thousand.

All this is clearly of little value, if not incompetent and immaterial.

Statements said to have been made by a deceased party to his adversary, are not generally allowed to be given in evidence at all, owing to the impossibility of correcting the narration of them, if untrue, and in any event such evidence is not much to be relied upon, especially as it will be seen from a perusal of Mr. Whitney's deposition that many portions of it are colored by his wishes.

This is peculiarly true here where it is to be observed that Cochran's letters of 1865 and 1866 show that the whole business resulted in failure (p. 60, fol. 105).

In the letter of June 5, 1865, he says:

"I do not feel in buoyant spirits about anything. I have worked
" hard and got a good arm, and contract for the manufacture of 10,-
" 000, but hardly got to work when comes down an injunction from
" the Court to stop, as I infringe."

In the letter of June 26, 1866, he says:

"And notwithstanding the fine contract for 10,000 of my arms,
" commenced in New Haven, all has fell through, the company
" busting up, after a delivery of a few hundred, and the expendi-
" ture of some thirty-four thousand dollars in tools, none of that
" loss" (*i. e.*, for tools) "comes on me or friend that contracted."

Whitney must have known all this, as he was the contracting party (p. 121, Q. 24), but omitted to state this outcome, on his direct-examination, contenting himself with conveying the impression to be derived from the statement that "the contract with A. B. Howe was for 10,000 * * *, and Cochran was to receive a royalty of a dollar a gun."

Though, on cross-examination, he was obliged to admit that but "few arms" were made, and that the contract broke down (p. 123, x-Qs. 2–4).

In view of this omission little is to be trusted to the same witness's "other general statements that Cochran "*seemed* to have ample means" (p. 121, Q. 26).

The burden of proof was on the defendant to prove the circumstances which are relied upon by him to indicate abandonment.

Abandonment is not presumed.

The law presumes that the inventor retained his legal rights, and proof to the effect merely that a number of patents were issued to a person of the same name, without showing anything as to the circumstances of their issuance, or whether he was assisted by others in obtaining them or not, and that from *one* only of them "he *was to* receive a royalty" from a contract which resulted in disappointment is quite inadequate to support the issue.

It is certainly true that no fair inference of abandonment can be drawn against an inventor because in the interval between his two applications, and before any equities growing out of public use have arisen in favor of others, he obtains by the pecuniary aid of others some other patents, and earnestly prosecutes, with either greater or less success, one or more promising and more readily appreciated inventions.

We say that in the interval while Cochran was attending to other inventions no equities which should bar his rights were acquired, because the proofs show that intermediate the first and second applications of Cochran, only two classes of acts were done by others.

1st. Three parties, and three parties only, obtained patents in which were shown and described the features claimed by Cochran;* Geiger, in 1863, Stillman, in 1865, and Laidley & Emery, in 1866 (p. 108, Qs. 7–10), but no one of these claimed as his original invention the invention patented by Cochran. When supposed intermediate patents were cited in 1868 by the Patent Office examiner as a reason for rejecting Cochran's renewed application, his attorneys properly replied (p. 164):

"It is not pretended that they anticipate the invention of Coch-
"ran, *as his application was filed in the Patent Office two and a half*
"*years before the first of these patents.* The idea that the existence in

*Reference was made in the arguments in the Court below, and perhaps will here be made to a statement in the opinion of Commissioner Fisher, in 1869, that the devices found in Cochran's first and second claims were found "in some eighteen different patents executed within the period named." This was doubtless a mistake, for the defendants have been unable to find such patents, or else different claims of Cochran were referred to, and the objectionable ones erased.

" a drawing, or the description in a specification, *subsequently filed*, of " any of the features of Cochran's device can be construed as evi- " dence of 'public use,' or is such 'proof of abandonment,' as re- " quired by the statute, is too ridiculously absurd to admit of argu- " ment."

Nor were such guns as Geiger's, Stillman's or Laidley & Emery's put into public use or on sale. On this point the evidence of the defendant Whitney, who had the best means of being informed on this subject, sums up all that can be said.

He says (p. 119. Q. 15):

" It is my *impression* that arms of that character were manufac- " tured and sold in 1865, or in the early part of 1866. *Experimental* " trials were made before different military boards by different " parties *making models* previous to that time, 1865–66, and were " *probably* offered for sale."

It subsequently appeared that the guns to which Whitney referred as having been manufactured by the Remingtons were made by the Savage Arms Co. (p. 119, Q. 16), and *did not* embody the invention (p. 63, Qs. 4–7).

Mr. Clough proves clearly that no guns embodying Cochran's invention were ever in public use or sold prior to the summer of 1867 (p. 63, Qs. 3–22)

Judge SHIPMAN was entirely correct when he said in his opinion:

" I find no adequate evidence of public use by any one for two " years preceding the date of the final application; even if one of the " guns which was presented for competitive examination by the " Board of Army Officers, in Springfield, in 1865, embodied the " Cochran invention, it does not appear to me that the submitting " an invention to the test of examination by experts in competition " with other inventors is the public use to which the statute re- " fers."

2nd. A single experimental gun was made by Remington & Sons in April, 1866, but never sold (p.64, Qs. 8–12). A second was made and sold in July, 1867.

In August, 1867, about 150 were made on trial for the French government, and in September, 1867, the first of the guns were

made on contract for the Danish government. What was done in these respects was done only by one of the complainants in this suit, now the licensee under the patent.

If Cochran had never made any application for a patent in 1859, but had merely made the invention claimed by him at that time and had filed no application at all until 1868, the mere fact that some of the guns embodying this invention were being sold for about five months prior to that application, would not bar him from applying for a patent at the time he actually did apply in 1868.

Is he in any worse position because at the time he invented it he evidenced such invention in an application for a patent, which was not then prosecuted by him?

Thus is appears that no equities arose in favor of others in the interval between Cochran's two applications which should debar him from securing a patent.

The statute law does not recognize "equities," as such, as a ground for refusing a patent, or declaring it invalid if granted.

The first inventor has a statutory right to his grant unless he has forfeited it in one of the ways prescribed by statute.

It is not a reason why a patent should have been refused him that Geiger and Stillman and Laidley & Emery obtained patents *after* Cochran's invention, but before his renewed application for a patent.

A patent to another to bar an applicant's right must be prior to the date of his *invention*, not of his application *merely*.

These other inventors acquired no rights against Cochran by the mere grant of their patents.

It does not appear that they ever made a single gun under their patents or put the public in the use of their inventions.

Whitney, the defendant, at some time, *when*, he does not say, bought the Stillman and Laidley & Emery patents (p. 117, Qs. 9–10).

He does not pretend that he purchased them before the date of Cochran's *second* application, or even before the date of his patent in 1872, and it is clear that such purchase was not till 1871 or 1872, for it was not until 1872 that the defendants commenced the manufacture of the ~~infantry~~ infringing arms (p. 137, Q. 110) nor prior to 1870 or 1871 that they even "decided on constructing an arm having those features" (x-Q. 112).

All this was long subsequent to the renewal of Cochran's application, and Whitney knew of it in 1870 or 1871.

Of course no equities accrued in favor of Whitney because the

Remingtons began the manufacture of their arms in the autumn of 1867.

The Remingtons waived any possible equities in their favor, recognized the Cochran patent, promptly took a license under it and have paid enormous sums in royalties (see license, pp. 27–29).

They ask that the patent be sustained, not that it be avoided.

As bearing on the question of abandonment, it is, however, stated on behalf of the defendants, that Cochran in the year 1866 expressed to Mr. Whitney disapproval of the system of the present Remington gun (Whitney, Record, p. 126, Q. 38), from which it is sought to be inferred that he had abandoned any notion of any value of his invention.

This conversation is stated by Mr. Whitney to have occurred in the spring of 1866 (p. 34).

Several answers are to be made to this statement.

1. The statement, if ever made, would have been very natural on the part of Mr. Cochran, and would not imply any abandonment by him of the invention now patented, for he was at that time dealing with Mr. Whitney in regard to a gun embodying another system, and it would be most natural for him to think and speak highly of the gun he was then negotiating about, especially as it appears by the proof that that gun was, in fact, a very exellent fire arm, and had received the approval of General Grant and other distinguished officers (Whitney, Record, p. 121, Q. 25).

2. But such conversation could not, in fact, have taken place, because the Remington gun which Cochran, it is said, disapproved of, *had then no existence.* The superintendent of the Remington Company shows that only a single gun of that patent was made before the year 1867 ; only a single specimen gun was made in 1866, and no other until about July, 1867 (Clough, Record, p. 64, Qs. 8–15).

3. It appears that Mr. Whitney may have heard Cochran make some disapproving remarks in regard to the Remington arm manufactured by the Savage Arms Company, at Middletown, in 1864 or 1865. This is strongly indicated by the cross-examination (Whitney, Record, p. 126, Qs. 39–43). This arm was somewhat similar to the system now patented by Cochran, but lacked one of its most beneficial features. The brace for the breech block, instead of being pivoted in the *rear* of the breech block, as described and claimed in the present patent, was pivoted in *front* of the breech block, and as

a consequence, the gun was a failure. Mr. Clough (Record, p. 64, Qs. 4–7) shows that the gun *for that reason* was a failure and was abandoned, and disapprobation, if expressed by Mr. Cockran, would have been fully justified. It seems fair to infer that Mr. Whitney in the present case has at least mistakenly transferred some disapproving remark of Cochran's about the Savage Arms Company's gun to the present gun of the Remington's.

SEVENTH POINT.

Even if the withdrawal of Cochran's original application ever had any effect to prejudice his right to a patent, that prejudice was removed by his compliance with Section 35 of the Act of July 8th, 1870.

Section 35, of the Act of 1870, provides that "when an appli-"cation for a patent has been rejected or *withdrawn* prior to the "passage of this act, the applicant shall have six months from the "date of such passage to renew his application or file a new one; "and if he omits to do either his *application* shall be held to have "been abandoned. Upon the hearing of such renewed applications "abandonment shall be considered as a matter of fact." It is not uninteresting to note the history of this provision in Congress. It was introduced in a somewhat different form in the bill as it was first reported in the House of Representatives, on April 7th, 1870, from the Committee of Patents; the wording of the provision being then as follows: "Provided, that when an application for a patent "has been rejected or withdrawn prior to the passage of this act "the applicant shall have two years from the date of such passage "to renew his application or to file a new one, and if he omits to "do either, his application shall be held to have been aban-"doned."

When the bill was reported again by the Committee, on April 13, 1870, the provision was altered to the following: "Provided that "when an application for a patent has been rejected or withdrawn "prior to the passage of this Act, the applicant shall have two years

"from the date of its passage to renew his application or to file a "new one, and if he omits to do either his application shall be held "to have been abandoned. But this provision shall not be held to "revive any application heretofore in fact abandoned."

The bill with the provision in this form was ordered printed and recommitted to the Committee on Patents.

On April 14th, 1870, this provision was debated in the House of Representatives. Mr. Jenckes, Chairman of the Committee, explained the purpose of the section in the following words:

"Another source of difficulty, which was becoming a great one, "arose from the fact that there is a large number of what are called "rejected applications in the Patent Office. During the past year "there were over five thousand final rejections, and the year "before nearly as many, and since the constitution of the office, "there are perhaps twenty thousand remaining in the office. Most "of these rejections have been acquiesced in and the claims aban- "doned; but some of these have been rejected improperly, and "contain descriptions of valuable inventions. In the course of "time it has been discovered in many cases that the rejection was "wrong, and the Examiner had made a mistake, and the appli- "cant has again made application for his patent and pressed it, "and it has sometimes been allowed and sometimes rejected. If "allowed, he would go and try its validity in the Court; if re- "fused, the further difficulty arose on the provision in the exist- "ing laws of the revision of the decisions of the Commissioners.

"As the law now stands appeal may be taken to one of the "Judges of the Supreme Court of the District of Columbia, or "remedy be had by suit in equity in that or any other Circuit "Court. This led to a conflict in the jurisdiction exercised by the "Commissioner and that exercised by a single Judge in this Dis- "trict,* and I suppose behind it a further and greater cause of dif- "ficulty; that is, the law, as it now stands, contains no provision "absolute in itself clearly and distinctly defining what should con- "stitute the abandonment of an invention to the public. We "heard the Solicitor at great length on this question, and the con-

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* This case of Cochran's application was the very one referred to by Mr. Jenckes. The Supreme Court of the District decided that Cochran had not abandoned his application, and was entitled to this patent, but the late Commissioner Fisher had refused to grant this patent notwithstanding, holding that withdrawal of the application accompanied by delay in law amounted to abandonment.

" clusion the Committee arrived at is expressed in two short pro-
" visions of the proposed bill. The substance of them I will state:

" 'Each and every party whose application has been refused is
" allowed two years to renew that application before the Commis-
" sioner, but this provision is not allowed to revive any application
" for an invention which has been, as a *matter of fact*, abandoned
" to the public.

" In other words, it says a *mere lapse of time* in the prosecution
" of an application for a patent shall not be conclusive evidence of
" abandonment; that the right of a patent for a first and original
" invention is a *vested right*, and can only be lost by the inventor in
" not proceeding *in accordance with the provisions of law*, or in his
" forfeiting that right in accordance with those provisions; and to
" those in this condition, not cut off by any positive existing statute
" of limitation, a new suit of limitation is proposed defining the time
" in which said new application shall be made.' Thus all the rights
" are preserved and the mode of prosecuting them is pointed out.
" This field of controversy concerning these old applications, whether
" abandoned or not, is *fully and satisfactorily provided for*."

This bill was introduced into the Senate on April 25th, 1870, with the provision referred to in the form last above quoted, and that form was approved and reported by the Senate Committee on Patents.

On June 24th, 1870, on recommendation of the Committee on Patents, the provision was stricken out by the Senate.

The House failed to concur in the amendment, and a conference committee was appointed.

The section in its *present form*, as first quoted above, was inserted by the Conference Committee, and the bill, so amended, was passed by both Houses, and was approved July 8th, 1870.

Cochran's renewed application had been filed May 6, 1868. The file wrapper and papers in the Patent Office show diligent prosecution on the part of Cockran during that and the following year. After a long opposition and an appeal to the Supreme Court of the District of Columbia, his application was allowed and the patent ordered to be issued. The then Commission of Patents, however, declined to obey that order, differing from the Court as to what constituted "abandonment," in the eye of the law. His action was clearly erroneous, and the decision of the Court was conclusive.

Hoe vs. Butterworth, 112 U. S.

On July 8th, 1870, the Act of 1870, containing the section 35 already quoted, was passed.

Mr. Cochran promptly renewed, within the six months allowed by that section, his application for a patent. A number of amendments were made and the claims presented in more limited form.

The question then arose upon that new application under the Act, whether his original application had been "abandoned to the public."

The question of abandonment was directed by section 35 to be considered by the Commissioner "*as a question of fact*," and to him was committed, as a judicial authority appointed for that purpose, the decision of that question.

After considerable delay, the then Commissioner of Patents did consider that question and did grant a patent to said Cockran; and it is to be conclusively presumed that the proofs—oral or written, or both—were satisfactory to his mind that the application had not been abandoned by said Cockran, for the Commissioner granted the patent to said Cockran on the 7th of May, 1872, as the result of his decision on that question.

The Commissioner of Patents having been specially appointed as the judicial officer to pass upon the question of abandonment as a question of fact, and such question having been committed to his judicial discretion and determination, his determination upon that point is not and cannot be reviewed in the Courts in a collateral proceeding.

His Honor Judge SHIPMAN missed the point of this branch of the case when he held in his opinion that the 35th section of the Act of 1870 did not make the Commissioner's judgment on the question of abandonment of the "*invention*" conclusive.

The decision of the Commissioner was based on the causes of delay in renewing the *application* and upon the question whether the original *application* had been finally abandoned or not, not the question whether the *invention* had been abandoned or not.

On this point, which relate *to his own* records, his judgment cannot be reviewed.

What proofs were submitted to him on this point do not appear.

The *defendants* (not the complainants) offered the file wrapper and contents in evidence, but the absence of the record of the proofs presented to the Commissioner does not show that there were no proofs on that point.

Hoe vs. Kahler, 20 Blatch., 430.

On the contrary, it must be conclusively presumed that the proofs were sufficient.

Under these circumstances it is submitted that the facts do not show any abandonment of the invention by Mr. Cockran, and that his delay in renewing his first application is amply explained by us above.

EIGHTH POINT.

The Cochran patent shows a patentable combination.

In this connection may be mentioned another defense, which, though no mention is made of it in the answer, was suggested to the Court below.

It was contended by the defendants that the Cochran patent shows a gun, which as described and shown, is an unsalable and therefore unpatentable article (Hicks, record, p. 52, Qs. 29–31).

The Cochran patent does not pretend to fully describe a complete firearm; it described only certain new features and improvements, leaving the ordinary working parts of the gun to be supplied by the ordinary knowledge of gun manufacturers. This is all that it was necessary to do. The fact that the description of the gun as a whole, as contained in the patent, is imperfect, does not prevent the combination there described from being patented. The combination described is the foundation and prototype of the advantageous features of the modern breech-loading firearm manufactured both by the plaintiff and the defendants, and it has this utility because it is such a foundation and prototype, and because it is capable of being modified in little matters of detail into the most practical and efficient firearm of the present day (Hicks, p. 44, Q. 8–9). This is all that is required.

Union Paper Bag Company vs. Nixon, 6 Of. G., 402.
Wheeler vs. Clipper Company, 11 Blatch.
R. H. L. Lipman, 1 Of. G., 304.

The same objection would apply to all of the patents introduced by the defendants in evidence as anticipating devices, as none of

them describe any detail of the necessary working parts of the various arms for which such patents were granted.

It is clear that all the features of construction which form the subject of the first claim have a joint, operative and useful connection.

The elements, it will be remembered, are three: (1) the breech-loading gun, (2) the breech-block to close it, (3) the brace to hold it closed. The breech-block swings downward in closing, and the brace upward, so that both parts work entirely within the frame of the gun, and can pass each other in locking and unlocking while arranged in compact form.

Swinging around fixed points, as both of said parts do, they act together, in closing, as a toggle to close the breech in the most effectual manner, while the movable brace, wholly dispensing as it does with any fixed rear support for the breech-block, effectually prevents any danger due to clogging of such block, which sometimes occurs in guns with fixed supports against the force of recoil, because the brace which forms the support can itself be readily moved so as to free the breech.

NINTH POINT.

Infringement.

(*a*) The defendants commenced their infringement with full notice of the patent of Cochran and his rights under that patent. The examination of Mr. Whitney, one of the defendants, shows that the defendants had knowledge of the application of Cochran before they commenced to manufacture the guns complained of, and even entered into negotiations to procure a license under such patents. They are, therefore, to be treated as willful infringers (Rec., pp. 122 and 62).

(*b*) As pointed out in the first part of this brief, the answer does not explicitly deny infringement of the patent. It denies that they have done "any injury or wrong" to the complainant, or "infringed any of his *rights*." This is equivocal.

It perhaps relieves the conscience by the mental reservation that the patent being invalid, no "wrong" can be done by infringing it, and that it conveys no "rights" that can be infringed.

There is no specific denial that the defendant has infringed *the patent.* That is the issue presented by the bill, and that issue is evaded by a mere denial that any "rights" have been infringed.

Equivocal denials should be construed strongly against a defendant.

The evidence of the plaintiff's experts (Renwick, p. 16, Q. 4; Hicks, p. 47, Q. 20) is clear upon the question of infringement.

And Whitney substantially admits it (p. 139, Qs. 122–126).

In answer to questions he finally says:

"x-Q. 125. Well, you have still failed to answer, whether in "your opinion your gun contains the invention substantially as "claimed in the first claim of Cochran's patent. Please answer "that question 'Yes' or 'No.'

"A. *Yes, substantially as claimed,* but not substantially as "described.

"x-Q. 126. You think, then, do you, that the claim is broader "than the special description?

"A. *Yes,* when it has reference to any other gun than the "Cochran."

The only point of difference which can be suggested is that in the Cochran arm the brace is moved by an arm *below* the stock, and in the Whitney the same brace is moved in the same way by an arm ~~upon~~ above the stock.

This is an improvement, but still not an essential modification.

TENTH POINT.

None of the patents offered in evidence by the defendants as alleged anticipations of the Cochran devices, are anticipations in fact.

The decision of his Honor Judge SHIPMAN does not touch upon this point at all, so that it may fairly be presumed that he did not

find that the patents relied on by the defendants were anticipations of the Cochran device.

Taking up, however, such patents in their order of date, we may briefly consider the combinations therein shown and described.

First. The patent of A. D. Perry, dated November 28th, 1854.

The substantial differences between the Perry gun and that described in the Cockran patent, are clearly pointed out by the complainant's experts (see E. S. Renwick, p. 42, Qs. 3 and 4; W. C. Hicks, p. 60, Qs. 6–8). The Perry patent contains a combination of guns, breech-block and locking device. The breech-block has substantially the mode of operation of the Cochran breech-block, but the locking device of the Perry patent is substantially different in nature, arrangement and operation from the "brace" of the Cochran patent. In the Cochran gun the brace is *pivoted to the frame of the gun*. In the Perry gun it is pivoted to the breech closing piece. In the Cochran patent it turns *upward* and *backward* in unlocking the breech. In the Perry patent it moved *downward* and *forward* in unlocking the breech. The substantial advantage of Cockran's arrangements are clearly pointed out in the evidence (p. 44, Q. 4; see also, Wm. C. Hicks, p. 60, Qs. 6 and 7). The expert for the defendant, Mr. Earle, does *not* affirm that the invention of Cochran is found in the Perry patent.

Second. The Letters Patent of A. E. Burnside, dated March 25th, 1856.

The substantial differences between the Burnside gun and that of Cochran are clearly pointed out by the complainant's experts (see E. S. Renwick, p. 45, Qs. 7–15, and W. C. Hicks, p. 64, Qs. 12–22). The Burnside patent has not such a breech-block as is described in the Cochran patent. It has a movable "cartridge-box" or "cartridge-chamber" for containing the cartridge, which is, in truth, a part of the barrel or gun proper. This portion of the barrel or cartridge-chamber swings, it is true, in the manner of the "breech-block" in the Cochran patent, but the breech-block proper, or "breech-pin," as it is called in said patent, the function of which is "to *withstand* the pressure of the gases evolved in the discharge of "the arm," is arranged in a totally and substantially different manner.

Again, there is no brace in the Burnside gun substantially like the brace of the Cochran patent. The real "brace" is the curved

seat in the rear of the breech, which is *solid* and *stationary* and not a *movable* brace *pivoted to the frame* as in the Cochran gun.

A locking "bolt" in Burnside's gun, intended to prevent the accidental opening of the piece when being carried, and as "an additional security" against opening when discharged, is attempted to be modified into a "brace" for the purpose of resisting the recoil of the explosion. But the distinction between the functions of the two devices are clearly pointed out in the answers already referred to of the complainant's experts.

The Burnside gun belongs to an *obsolete* class of guns entirely distinct in their classification from the class to which the Cochran, Remington and Whitney guns belong. This is rendered quite apparent by inspecting the classification of breech-loading small arms founded on the motions of the principal part by which the breech is opened and closed, in the Government report of the Chief of Ordnance for the year 1875.

The Remington and Whitney guns are there classed together in the same subdivision; and under the grand division of guns with a *fixed* chamber, the Burnside gun being classed under the division of guns with a *movable* chamber, and specified as *obsolete*. (See classification, opposite p. 268.)

The Burnside gun is also to be classed differently from that of Cochran, for the reason that it is one of those guns in which the recoil of discharge is sustained by a *direct, stationary rear support*. In Cochran's gun the recoil is sustained by a *movable* rear support *pivoted* to the frame. There is a well recognized distinction between the two classes of arms. (See Renwick, p. 49, Q. 12; Hicks, p. 69, Q. 121.)

The distinction is in substance admitted by the defendant Whitney. (Deft., p. 66, Qs. 61, 62.)

The substantial differences between the two guns and the actual functions of the parts *now* claimed to be identical with Cochran's are well shown by the Burnside guns as actually manufactured, in which the function of the "locking bolt" *now* claimed to be "a *brace*," is fully illustrated by its conversion into an ordinary *latch*, which was always its real object.

Still another point is to be observed in considering the effect of the Burnside gun, as an alleged anticipation of Cochran's. A certain modification of the Burnside arm *said* to be suggested or pointed out in the Burnside patent, is relied upon as a prior "description" of the invention. But to render a prior description available as a

defense it must be so "full and *precise* as to enable a mechanic to "to construct it, and must be in all material respects like that covered "by or described in the plaintiff's patent."

If it be *doubtful* whether the thing patented is described in the alleged prior publication, the existence of that doubt is a sufficient answer to the defense.

Parker vs. Stiles, 5 McLean, 44.
Hays vs. Judson, 1 Fish., 532.
Judson vs. Cope, *Id.*, 615.
Seymour vs. Osborn, 11 Wall., 543.

In the present case the defendant's own experts could not follow the description, as it is now contended it ought to be read, for while it is to be presumed that they had every desire to construe the description as favorable to their case as possible, and while interest stimulated their ingenuity in that direction, yet they produced a model which Mr. Earl swore *correctly* represented Burnside's description and illustration (Earle, p. 8, Q. 16), but which, after it had been shown to be substantially different from Cochran's, he was recalled to swear was *incorrect*, and a *new* model was then substituted (p. 90, Q. 3).

If the defendant's own expert, with every incentive to construct something like the Cochran gun from Burnside's description, was unable to do so, even on his own showing, until he had tried once and again, the question whether such description is "precise" and "unambiguous" so as to *enable a mechanic* to produce the invention, needs no long discussion.

It is to be observed, also, that Mr. H. B. Renwick, whom the defendants appeared to have called as a *dernier resort*, states his opinion of the alleged similarity of Burnside's to Cochran's gun in a strikingly *hypothetical* way. He says he "has come to the *conclusion*" that the patent ought to be read in the manner desired by the defendants. Such reading cannot, therefore, be plain, open and unambiguous (Defts., p. 108, Q. 17).

It is to be noticed, too, that Mr. H. B. Renwick does not venture to say that the Burnside arm is *substantially the same* as Cochran's in the construction and arrangement of the parts claimed, but only that if the Cochran claim be construed in a *certain* way, it can be made to *cover* Burnside's gun.

It is hardly necessary to suggest, in answer to this position, that the Court will probably construe the claim so as to *support* the

patent and not to *avoid* it, and will define it in accordance with the real thing invented, and not expand it to what it *might* be "construed to *cover*," in order to render it invalid.

The Burnside gun is substantially different from that of Cochran. Though at first sight there is a similarity in the arrangement and motion of certain parts, yet, in reality, every substantial feature is substantially different.

(*a*) THE GUN IS DIFFERENT. Cochran's gun is a "breech-loading firearm," *i. e.*, loading into the breach of a fixed cartridge chamber or barrel. Burnside's gun is not properly a breech-loader at all. It is true, the cartridge is inserted not at the extreme muzzle, but at a point nearer the breech, but in truth it is a form of muzzle-loader—the cartridge being inserted *from* the front *toward* the *breech*, and not *from* the breech toward the muzzle or front.

(*b*) THE BREECH BLOCK IS DIFFERENT, *and is combined with the* Gun *differently*. Cochran's "Breech Block" is arranged and combined directly in the rear of the *fixed* barrel and cartridge chamber; it swings backwards and downwards in the arc of a circle in opening the cartridge chamber, and upwards and forwards in closing the chamber and backing up the cartridge, to resist the recoil; it is pivoted below the cartridge chamber.

Burnside's breech block *slides* to and from the cartridge chamber, and does not swing at all. It is not pivoted at all.

The cartridge chamber swings and carries with it the breech block, but the breech does not swing with reference to the cartridge chamber. There is no motion upward and forward, so as to back up a cartridge inserted in a fixed barrel, and no motion downward and backward in any such relation to the barrel as to render it possible for the breech block to carry and operate an *extractor* as in the Cochran.

(*c*) THE "BRACE" IS DIFFERENT, *and is combined with the Breech Block differently*. Cochran's "brace" is a movable one, *not* in the line of fire. There is no "direct stationary rear support," the movable brace being *substituted* for it. It is "pivoted to the frame;" it is therefore not a mere pivot, but is something of such size that it can *alone* act as *the brace*, and be swung out of the way *on a pivot*, when a breech is to be opened.

Burnside's "brace" is a *stationary* one in the line of fire.

There is no *substitution* of any movable brace for this. The gun is described, under every modification, as having this direct rear

Supreme Court U. S.

support. It is contended by the defendants that the locking "bolt" is the brace. This cannot be.

It is plain that under *all* conditions, if the gun is *closed* the breech *must* be thrown back against its "curved seat" or "direct stationary rear support," or "brace." This is done by the pin *a*. If this pin acts, the breech must be thrown back or the gun will not close (Hicks, pp. 132, 911).

When thrown back it cannot be thrown down at the moment of explosion by the recoil, for such motion will be prevented either by the projecting portion of the curved seat or the pin *a*. *Either* feature compels the breech to slide forward to slide down. It cannot slide forward at the moment of explosion, of course (Hicks, *Id.*).

The locking bolt is of course useful and generally essential to keep the piece closed in carrying it, and also (as pointed out by Mr. Renwick) in preventing the fall of the hammer (which is not quite simultaneous with the explosion) from knocking it down; but if the breech is in place, the whole force of explosion must be upon the "curved seat" or "stationary brace." Hence the locking bolt is not *the* "brace." It is not described as such in the patent or by the inventor. The use of it does not *dispense* with the "direct stationary brace" as Cochran's does.

It is not of proper size or form to be reliable as *the* "brace" and its *hold* on the swinging piece is too light to be depended on. This is because it is a *mere* pivot or bolt. It is not a brace sufficient in itself, and pivoted to the frame.

It is no answer to say that if the direct stationary rear support was removed, *then* the "bolt" *would be* the brace. That would require a remodelling of the gun. The fact is that it is *not* the brace, and it was a part of Cochran's invention to dispense with the stationary support and modify the form so as to create a "brace."

3D. THE LETTERS PATENT OF THOMAS LEE, DATED APRIL 27TH, 1868.

The substantial difference between the Lee gun and that of Cochran are clearly pointed out by the complainant's experts (see Renwick, p. 54, Qs. 16, 17; Hicks, p. 70, Q. 23).

The Lee gun has a breech block which is the equivalent of Cochran's breech block; but there is no such brace pivoted in the rear of the breech block as described in the Cochran patent. The brace of the Lee patent moves *downward* in unlocking, instead of upward and backward, and the gun also belongs to the class of guns having

direct stationary rear support, and not to the class to which the Cochran gun belongs, having a movable pivoted rear support.

ELEVENTH POINT.

It is respectfully submitted that the decision of the Court below was erroneous, and should be reversed and the decree set aside, and a decree rendered in favor of the complainants.

FREDERIC H. BETTS,
J. E. HINDON HYDE.

118-22

Office Supreme Court U. S.
FILED
JAN 28 1886
JAMES H. McKENNEY,
CLERK.

Supreme Court of the United States.

UNITED STATES RIFLE AND CARTRIDGE CO. ET AL.

AGAINST

THE WHITNEY ARMS COMPANY, ET AL.

BRIEF IN REPLY FOR APPELLANT.

Most of the reasons urged in the appellee's brief for sustaining the decision of the Court below have been already anticipated in our previous brief.

It remains only to reply concisely to one or two points.

I. While it is *not* contended that the invention now claimed by Cochran is not fully and sufficiently described in his original application and drawing, yet the suggestion is made that because such description and drawing describe only those parts of a gun which pertain to and embody his invention, and not the *other* parts, *therefore* his invention is so crude in shape that one can readily believe that he would abandon it.

To this we reply:

II. It is not contended that the invention is not fully and sufficiently described in the original application, because

1. The patent, as granted, is based upon substantially the same drawing and description (the same model was used), and no allegation is made in the answer that the patent is insufficient,

2. No witness testifies that the application or patent contains an insufficient description.

3. The defendant, Whitney, expressly admits that the invention of the patent is found described in the original application (p. 120, Q. 19).

III. It is well settled law that an inventor need do nothing more, by way of reduction of his invention to practice, than describe it in a specification and drawing or model which sufficiently illustrates his idea, and teaches others how to practice it.

To require an inventor of certain parts of a gun to finish a practical firearm of suitable metal, and complete the gun in all its parts before he could be deemed to have made a complete invention relating to those parts, and before he could have any patent for a useful arrangement or modification of those certain parts or to require an inventor of certain additions to a loom, to make a complete working loom, before he could rightfully patent an addition to its structure, would be, in effect, to deny the right to a patent to any one who had not the money and the machinery to make a complete machine.

The law imposes no such restrictive obligation, and does not so discriminate against poverty.

As was held by this Court, in *Loom Co. vs. Higgins*, a drawing, if clear, is adequate evidence of invention.

In *Burrows vs. Wetherell*, I McArthur, p. 315 (MORSELL, J.), the Court held (see *syllabus*):

"Where an inventor has complied with the provisions of the "law by duly filing an application clearly showing and describing "the nature and operation of the invention, by specification and "drawings, verified by oath, he has reduced the principle of the in- "vention to practice for the purpose of obtaining a patent; and if "the invention is patentable he is entitled to the grant of a patent "therefor."

And it was further held in the same case that

"It is essential that the improvement (in the case of machinery), "as described in the specification, shall, as a matter of fact, be cap- "able of operating in the manner described; and it will be sufficient "evidence of this fact if it shall appear in the course of testimony, "taken in an interference proceeding, that the invention *has been*

" *successful in the hands of others*, although the applicant himself, " having a mistaken idea of the capacity of the machinery, has failed " to obtain successful results."

In *Heath vs. Hildreth*, 1 McArthur, p. 12, Judge CRANCH stated the law upon the subject of the reduction of an invention to practice in the following words :

" No one of the Patent Laws have ever required that the inven- " tion should be in use or reduced to actual practice before the issu- " ing of the patent otherwise than by a model, drawing and a specifi- " cation, containing a written description of the invention and of the " manner of making, constructing and using the same in such full, " clear and exact terms as to enable any person skilled in the art to " which it appertains to make, construct and use the same."

And again :

" It is alleged he [the inventor] was not the first inventor, be- " cause he had not reduced his invention to practice. But that " objection is answered by showing that there is no law which re- " quires an inventor to put his invention in practice or use before " obtaining his patent ; and it is perfectly immaterial to him whether " the subsequent inventor had put it in practice or not. That fact " cannot affect the right of the first inventor."

In *Perry vs. Cornell*, 1 McArthur, p. 68, Judge CRANCH said as follows :

" But it is said that Mr. Cornell is not entitled to a patent be- " cause he has never reduced the invention to practice. But reduc- " ing to practice differs from bringing it to use. There is no law " requiring the applicant to reduce his invention to actual use " before he can obtain a patent. On the contrary, the use of an " invention before obtaining a patent is one of the reasons for refus- " ing it. An inventor has reduced his invention to practice when " he has so described it on paper, with such drawings or models, as " to enable any person skilled in the art to make and use the " same. He must show that it is practical, and the manner in " which it may be used."

IV. Nor can it be for a moment contended that failure, by an inventor, to describe in his papers, *parts which he did not invent*, shall in any way prejudice his right to full and complete protection to those which he *did* invent.

Hence it is perfectly immaterial whether Cochan describes in his application or in his patent a hammer or a firing pin, or whether the addition of those parts would require ingenuity or invention in the manner of their application.

His invention did not relate to those features, and hence he could not lawfully have claimed them in this present patent.

Whether he has claimed them elsewhere or whether anybody else has claimed them, or whether (as would appear by the record) no one has thought it possible or worth while to claim them, is immaterial.

The defendant has found no difficulty in adding them to the specific features and arrangement of Cochran, which it has in fact appropriated.

The law requires an applicant for a patent to specifically point out the parts, improvements and combinations which he claims as new, and to clearly distinguish them from what is old or not claimed, and how can he do this more clearly than by describing and illustrating *only* those features to which his claim relates?

V. The statement on page 6 of Mr. Thurston's brief (Sub. 6) is incorrect, if it means that the claims of the *patent*, as issued, are broader than those of the original application.

The contrary is clearly true at least of the only claim in issue (the 1st), as shown on pp. 10 11 of our former brief.

We respectfully submit that the decree should be reversed.

FREDERIC H. BETTS,
J. E. HINDON HYDE,
Counsel for Appellants.

118-22.

FILED
JAN 7 1886

Supreme Court of the United States,

OCTOBER TERM, 1885.

The United State Rifle and Cartridge Company and E. Remington & Sons, Appellants,

vs.

The Whitney Arms Company, Eli Whitney, President, and Eli Whitney.

No 157.

BRIEF FOR THE APPELLEE,

BY

BENJAMIN F. THURSTON.

PROVIDENCE:
E. A JOHNSON & CO., LAW PRINTERS, 57 WEYBOSSET STREET.
1885.

Supreme Court of the United States,

OCTOBER TERM. 1885.

THE UNITED STATES RIFLE AND CARTRIDGE COMPANY AND E. REMINGTON & SONS, APPELLANTS,
vs.
THE WHITNEY ARMS COMPANY, ELI WHITNEY, PRESIDENT, AND ELI WHITNEY.

No. 157.

BRIEF FOR THE APPELLEE.

The appellants in this case found their right to recover on the Letters Patent granted to John W. Cochran, dated May 7, 1872, No. 126,446. This patent was applied for on the 11th of January, 1859. The application was rejected, upon pertinent references, on February 8, 1859. Thereupon, on the 20th of February, 1860, the applicant unconditionally withdrew his application and received back the fee of twenty dollars. He remained quiescent for eight years, and in May, 1868, renewed his application, which the Commissioner of Patents refused to grant, on the ground of abandonment of the invention, and because there had been introduced in the meantime into the art

various inventions in relation to fire-arms, which would be tributary to the Cochran patent if the renewed application were granted. Finally, after the passage of the Act of July 8, 1870, the patent was granted; so that a period of thirteen years elapsed between the date of the original application and the date of the sealing and issuing of the patent.

The suit is brought to restrain the manufacture and sale of the Whitney breach-loading fire-arm, and which is an arm which has largely been introduced into use, and is constructed under the authority of the Letters Patent granted to James Stillman, October 17, 1865, and other Letters Patent granted to Laidley & Emory, May 15, 1866, for the special improvements which are embodied in the Whitney arm, and the inventions which they contain were made, and the Letters Patent for them issued, during the period of time that Cochran impliedly declaring to the world that he had abandoned his supposed invention.

Reliance is made upon the first claim in the patent, which is in the words following:

> "1. The combination, in a breech-loading gun, of the breech block pivoted so as to swing backward and downward in the arc of a circle upon a fixed point, with a brace other than the nose of the hammer pivoted to a frame in rear of of said block, said brace being arranged to swing upward in unlocking the breech, substantially as described." (Record p. 20.)

The Cochran Invention.

The drawing which accompanies the patent clearly exhibits the rudimentary character of the structure. No

fire-arm was ever constructed corresponding with the description and drawing of the patent. The crude characacter of the arm has an important bearing in aid of the allegation by the defendants that the invention of Cochran, whatever it may have been, was abandoned, and an understanding of the features of the arm is also important upon the further defence of non-infringement.

Neither the drawing of the patent, nor the model in the Patent Office, exhibits any firing mechanism, and shows no device by which any such mechanism can be connected with the arm. Neither is any hammer shown to act in any combination with any firing mechanism, and, in a word, an arm constructed according to the description and drawing would be obviously an inclompete weapon, and would require invention before it could be adapted to use, to contrive some way by which a firing pin for exploding the fulminate of either a rim-fire or a central-fire cartridge could be made to work in harmony with the movements of the pivoted breech-piece. The apparatus, as a whole, consists of a chambered rifle barrel, into the rear end of which a metallic cartridge is to be inserted. The open end of the chamber is to be closed by a breech-piece arranged to swing upon a pivot and to move backward and downward to open the breech of the gun. A pivoted lever is shown, to be worked by the hand, and which is called in the patent a "brace," and its purpose is to lock or to hold the breech-block against the recoil of the breech-piece upon the firing of the cartridge. When the breech-piece is to be opened for the reception of the cartridge, the hand lever, which is attached to the brace and forms a part of it, is moved downward and forward, and consequently the "brace end" of said lever takes a reverse movement, or, in an upward and backward direction.

When this has been accomplished by the hand of the operator, the breech-piece can be opened like a scuttle-door, which is hinged so that it will swing backward and downward. When the arm is to be put into the condition for firing, the cartridge is inserted into the chamber, the back-door, constituting the breech-piece, is to be moved to a position to cover the rear end of the chamber by the hand of the operator, and then the brace, by another manipulation of the hand, is to be brought into position so as to bear against the back side of the breech-piece.

While it is not contended that it is necessary for a patentee, in order to receive proper protection, to put on exhibition a perfect working specimen of his invention, or to make complete working drawings of the parts of the apparatus or machine which surround his invention and are necessary for an operative machine, yet it is insisted that where the question of abandonment is fairly raised, and the acts and conduct of the inventor give encouragement to such a defence, the condition to which the supposed invention has been developed, by any exbibition which the patentee ever made of it, is most important, for the reason that the object of the patent laws is, in the the language of *Atlantic Works* vs. *Brady*, 107 U. S., 192, "to reward those who make some substantial discovery or invention which adds to our knowledge and makes a step in advance in the useful arts;" and if an inventor has never seen fit to reduce his invention to practice, even to the limited extent of making a drawing which would enable a skilled workman to produce a working device, such neglect will give emphasis to the acts and circumstances which indicate that the invention, whatever might have been its possibilities, was abandoned by its author, because it was never, in any just sense, perfected or completed. It takes

less evidence to satisfy the mind that an invention has been abandoned, in case it appears that the thing which is alleged to have been abandoned was never made of any practical value whatever, or ever put into working form.

Before directing the attention of the court to the improvements in breech-loading fire-arms which preceded the invention of Cochran, and bear directly upon the allegation which the defendants make, that the subject of invention set forth in the first claim of the patent is anticipated in various patents of prior date, and also before considering the question of infringement, I desire to set forth clearly the position which the defendants take on the proposition of

Cochran's Abandonment of his Invention.

The following is the history of the proceedings in the Patent Office, as will appear from a copy of the contents of the file-wrapper: (Rec. pp. 152-156.)

1. The application was filed January 11, 1859, and was accompanied with the government fee, then required by law, of thirty dollars.

2. February 8, 1859, the application was rejected for want of novelty, on reference to prior patents to Thomas Lee and G. W. Morse.

3. February 20, 1860, Cochran in person withdrew his application and requested that twenty dollars be refunded to him under the act of congress in that behalf, and it ap-

pears from the memorandum on the papers that the money was received by him.

4. He did nothing further in the direction of prosecuting his application for eight years.

5. May 6, 1868, a new application was filed (Rec. p. 156) which does not profess to be on its face a renewal or revival of the old application.

6. The specification was a new one throughout. The claims were very greatly enlarged in their scope, as will be apparent from a comparison of those appended to the first application (Rec. p. 154) with those annexed to the patent as issued (Rec. p. 184).

7. October 13, 1868, the application was rejected on the ground of abandonment, the office stating that it appeared that no effort had been made between Feburary 8, 1859, and the date of the new application (nine years) to prosecute the invention.

8. An effort was made by the attorney of Cochran to avoid the charge of abandonment by argument, (Rec. pp. 160, 161,) which was followed, on October 22, 1868, by a second rejection of the application, for the reason that the alleged invention had been abandoned by the applicant, (Rec. p. 162,) with references to the adjudications in point.

9. January 6, 1869, the case having been remanded to the examiner by the examiners-in-chief with instructions to furnish the applicant with references which might bear upon the fact of public use of material parts of the invention claimed by others, more than two years prior to the

filing of Cochran's second application, the Examiner, on May 6, 1868, informed the applicant that the following lists of patents exhibited devices now claimed by the applicant, all of which patents were for improvements in fire-arms, granted between February 8, 1859, the date of the rejection of the original application, and May 6, 1868, the date of the second application:

Thomas Lee, November 19, 1861; *C. C. Coleman*, May 13, 1862; *B. F. Joslyn*, June 20, 1865; *W. H. Robertson*, March 13, 1866; *Joseph Rider*, December 8, 1863; *Albert M. White*, April 18, 1865; *E. S. Allen*, September 19, 1865; *Cyprian Chabot*, April 4, 1865; *Cyprian Chabot*, September 5, 1865; *W. H. Elliott*, May 23, 1865; *W. H. Elliott*, April 18, 1865; *E. S. Piper*, December 5, 1865; *Isaac Sutvan*, March 14, 1865; *James Stillman*, October 17, 1865; *W. H. Walcott*, June 13, 1865; *H. Berdan*, February 27, 1866; *W. H. & G. W. Miller*, December 26, 1865; *H. Berdan*, January 9, 1866. (Rec. pp. 163, 164.)

10. The applicant's attorney insisted that Cochran's right rested upon the fact that his invention was exhibited in his first application, which was of prior date to the patents referred to.

11. June 30, 1869, Cochran filed an affidavit for the purpose of negativing the inference of abandonment from his acts. In this affidavit, while he asserts that he was in an impoverished condition, he admits that meanwhile he has procured a great number of patents, and although he states that he was dependent for assistance in obtaining them upon the kindness of friends, there is a suggestion left upon the mind that each one of his improvements in fire-arms was a separate speculation for which he enlisted capital.

12. December 15, 1866, the application was again rejected by the Examiner upon additional references to prior inventions.

13. December 20, 1869, an amendment of the claims was submitted; whereupon the case was referred to the Commissioner himself for his action upon the question of abandonment.

14. Congress having in the meantime passed an act, approved July 8, 1870, the applicant was required to file a formal renewal application. (Rec. p. 173.)

15. December 17, 1870, the applicant was again rejected on reference to many other patents that had been obtained, showing in their drawings and descriptive matter the same subjects of invention which are sought to be covered by the Cochran patent, but which patents had been granted during the period of time intervening between the withdrawal of the original application and the filing of the second one.

16. An appeal had been taken to the Supreme Court for the District of Columbia before the passage of the Act of 1870, and the decision was favorable to Cochran. Commissioner Fisher, then at the head of the Patent Office, considered the case in person, affirmed the decision of the Board of Examiners-in-Chief rejecting the application, and refused to issue the patent. The opinion of Commissioner Fisher is to be found in the authorized report of the decisions of the Commissioner of Patents for the year 1869. It is an elaborate review of the facts of the case and of the law applicable thereto. The question, as he states it, is:

> "Can an inventor withdraw his application, make no effort to renew it for eight years, during which time the subject

matter of the invention has been incorporated into the substance of many other subsequent inventions, and then file a new application and obtain a patent which, to support the novelty of the invention, shall relate back to the first application?"

An analysis of his opinion is as follows:

He states that the practice of the Office has not been consistent, and that abandonment was sometimes treated as a question of fact, and sometimes as a conclusion of law; that, *prima facie*, it would seem that an application deliberately withdrawn could not form a foundation for a second application; that such second application must stand or fall upon its own merits, and that if public use intervened between the two disconnected applications for more than two years, no valid patent could be granted upon the second application. Reference is made, on the question of the continuity of applications, to *Godfrey* vs. *Eames*, 1 Wall., 317.

He concludes that the question of abandonment is one of fact, and that the question is submitted to him to determine that fact, and refers to the provisions of the Act of Congress which enjoined diligence upon the applicant in prosecuting his invention, and particularly to Section 3 of the Act of 1861, and he concludes that these injunctions of the law constitute lights by which to guide his judgment. He finds, as a fact, that during the period of time that Cochran withdrew his application from the Patent Office, eighteen separate Letters Patent had been taken by other inventors, which involved the same feature now sought to be covered by Cochran's renewed application. He points out the duty which the applicant is under by the statute and by the rules of the Patent Office, which have the force of law, to contest the propriety of the rejec-

tion of the application through the different stages of appeal, which are provided, and, finding that the applicant took none of these steps, he concludes that when he withdrew the application and remained quiescent for eight years, he adopted this course at his peril; and he ends with a pregnant sentence:

> "While it need not be asserted that the present applicant was setting a trap for those subsequent patentees, it is obvious that to sustain the present application would be to offer strong inducements to others to set such traps hereafter."

17. Commissioner Fisher retired from office, and his successor, under the authority of the thirty-fifth section of the Act of 1870, issued the patent.

Cochran Shows no Excuse for His Conduct Sufficient to Take the Present Case Out of the General Rule.

During the period that he was out of the Office with this present application he made twenty-two different applications for Letters Patent, and received twenty-two Letters Patent upon such applications, and nine of these twenty-two, related to improvements in breech-loading fire-arms. (John E. Earle's deposition, Rec. p. 99.) This fact negatives the possibility of his being in such a condition of poverty as would constitute an excuse for the acts and omissions which the foregoing record pertaining to the application for the patent in suit discloses.

A mass of family letters have been put into the record, consisting of correspondence between Cochran and his children, the purpose of which exhibits are to influence

the court to believe that Cochran's conduct, with respect to this application, was to be justified on account of extreme poverty. Unfortunately, however, they do not rebut the presumption of the intent to abandon this application. They tell a doleful story, it is true, of a family trouble. It is very likely that the man was not in affluent circumstances, but it is very certain that he had means enough to prosecute through the Patent office twenty-two different patents during the period of time that this correspondence took place. He had separated, as we understand it, from his wife, and how far the excuses for not furnishing his children money for their support are to be referred to his inability, or to other reasons, does not appear. Real poverty is to be commiserated, and it is possible to conceive of a case such as that of Cummins, considered in *Smith* vs. *Dental Vulcanite Co.*, 93 U. S., where it would be an excuse for the want of diligence that otherwise would be required; but mere whining complaints from a father to his daughters that he has no money to give them, when he has withdrawn his protection from the family home, has never yet judicially been held to be a reason why such natures should not be held to the same rule that nobler spirits must yield to.

The probability is, from the crude character of the drawings and model to which I have already adverted, that Cochran himself placed no value upon the subject. Confirmation of this view is found in the testimony of Eli Whitney, Rec. p. 123, Q. 33, where he testifies that Cochran condemned, in conversation with him in the spring of 1866, the Remington gun as based upon a radically defective "system," and which system so contained in that gun is the same as that described in the Cochran patent.

Again, Cochran was a prolific inventor. He seems to have

negotiated the sale of many of his patents, and it is proved that in the years 1865 and 1866 he received from John Haldeman the sum of eighteen thousand dollars for his foreign patents upon a breech-loading gun. (Haldeman's deposition, Rec. p. 111.) These payments commenced with the gross sum of five thousand dollars, and were followed by payments of one thousand dollars per month. Cochran was at this time living in lodgings, at variance with his wife, separated from his family, given to dissipation, (Rec. p. 112,) and was at the same time writing the most pitiful excuses to his children for not sending them money. See also, upon the subject of inferences as to his means to be drawn from his appearance, Whitney's deposition, Q. 27, R. p. 122.

It is unnecessary, I think, to review the various cases on the subject of abandonment, with the exception of one presently to be noticed, in which the ground has been fully covered by this court. I will content myself, therefore, with a reference merely to the names of the cases at the Circuit.

Bevin vs. *East Hampton Co.* 9 Blatch. 507.
Consolidated Fruit Jar Co. vs. *Wright*, 12 Blatch. 149.
Adams vs. *Jones*, 1 Fisher, 527.

The case which in its principle entirely covers the present case, and where the facts very closely resemble the present, is *Planing Machine Co.* vs. *Keith*, 101 U. S., 479. In this case there had been a withdrawal of the applicaiton and a return of the twenty dollars fee, but the withdrawal was made by an attorney, and it did not appear that the applicant was cognizant of the fact. The application was renewed after the passage of the Act of 1870,

and was granted under the provisions of the thirty-fifth section of that act. But this court held:

> "It surely cannot be claimed that patents obtained under the provisions of the thirty-fifth section of the act are any more unimpeachable than those referred to in the twenty-fourth section. By that section the Commissioner is authorized to deal with the question whether the invention has been abandoned, as well as with the question whether it was in public use or on sale more than two years prior to the application; yet both these matters; as well as the originality of the invention, upon which the Commissioner must pass, may be tested in suits brought for infringement of the patent. Such defences are allowed by the statute. It must then be open to every person charged with an infringement to show in his defence that the patentee had abandoned his invention before he obtained his patent.

The court therefore approves the view of the law that was taken by Mr. Commissioner Fisher in dealing with the present case, upon the proposition that abandonment of the invention was a fact which the court having jurisdiction of the case was entitled to try and determine, and that in determining the question the controlling considerations are the acts and conduct of the patentee exhibiting consistency with the one purpose or with the other. It is not necessary that an intent to abandon should be expressed in words or that any formal deed or instrument in writing should contain a statement of such purpose.

Kendall vs. *Winsor*, 21 How. 322.
Shaw vs. *Cooper*, 7 Peters, 292.

Again, the court in this case of *Planing Machine Co.* vs. *Keith*, holds that there may be an abandonment of an invention after an application has been made for a patent as well as before the application was made. *Adams* vs. *Jones*, 1 Fish, 527. The court refers to the plain intention of Congress in requiring diligence in the prosecution

of claims for Letters Patent, and states the reasonableness of the conclusion, that after an inventor has been rejected and has taken no steps for many years to prosecute his application, it should be held that he designed to desert it. The following paragraph in the opinion is consonant with sound equity, and is in accord with the long line of decisions of this court since January, 1882, upon the subject of the dedication by inventors, to the public, of subjects of claim which might have been made when the original patents were taken, but which the patentees have forborne to claim until after the public have acquired vested rights in the subject, 101 U. S. 485 :

> "When, in reliance upon his supine inaction, the public has made use of the result of his ingenuity and has accommodated its business and its machinery to the improvement, it is no injustice to him to hold that he shall be regarded as having assented to the appropriation, or, in other words, as having abandoned the invention.

The Whitney Arm is Manufactured Under the Authority of Letters Patent Granted to James Stillman October 17, 1865, and to Laidley & Emory May 15, 1866.

As is apparent, both those patents were granted during the period of time that Cochran was in effect declaring to the whole public that he claimed no such invention as the combination, in a breech-loading gun, of a breech-block pivoted so as to swing backward and downward, and secured, when in a closed position, by a brace other than the nose of the hammer. It is a fact (Eli Whitney's deposition, Rec. pp. 119, 120) that fire arms were constructed as early as 1865, which contained the subject of inven-

tion specified in the first claim of the present Cochran patent. These guns were put in competition before a board of army officers, at which all varieties of arms then known were presented for trial. Among these was an arm known as the Remington arm, and there was also another arm known as the "Chick" gun, which was presented by Cochran himself, and which embodied the features of the Laidley & Emory improvement.

I submit that the fact that single specimens of such arms were made for a competitive trial is to be taken in connection with the dates of the patents under which the same were constructed, to establish the fact of two years' prior use of the invention, which is the subject of the first claim of the Cochran patent, before the application upon which the present patent was founded was made. *Atlantic Works* vs. *Brady*, 107 U. S. 192.

The Cochran Invention, Aside From the Question of Abandonment, is Fully Anticipated.

The following facts will sufficiently establish this proposition.

The Flobert gun, a French invention, (see drawings between pp. 192, 193,) dates back to 1855, prior to the Cochran original application. It exhibits clearly a pivoted breech-piece swinging backward and downward in the arc of a circle. The breech-piece, however, is locked by the effect of pulling the trigger and allowing the hammer to fall. It has not a locking-brace independent of the hammer. In other respects the combination recited in the Cochran first claim is fully met.

The Letters Patent to A. D. Perry, November 28,1856, (see drawings facing p. 194,) clearly shows a breech-block swinging backwards and downwards in the arc of a circle, about a fixed point. It has a locking-brace other than the nose of the hammer, but the movement of such brace is not attended with the qualification required by the Cochran first claim, viz: "arranged to swing upward in unlocking the breech." It swings downward to unlock the breech.

Thomas Lee's patent of 1858 (Rec. p. 191) meets the combination of the Cochran claim, with the exception that the independent brace is arranged to swing downward to unlock the breech instead of to swing upward.

It could be well contended, upon these patents, that there was no room for any substantial invention to rest, by changing simply the direction in which the locking brace shall move. Certainly, it is clear, without going further, that the invention, in view of these patents, must be a very narrow improvement, and that there are no merits in it which should induce a court of equity to strain the law on the question of abandonment favorably for Cochran.

But a complete anticipation of the Cochran invention is to be found in the Letters Patent to the late General Burnside March 25, 1856. (See drawings facing p. 188.) This gun clearly shows a breech-block hinged upon a pivot and moving in the arc of a circle around a fixed point. The breech-block belongs to the class of blocks that was known at the date of the Burnside invention, just as the swinging back door breech was well known at the date of the Cochran invention. While there is a manifest difference between the breech-piece of the Burnside arm and the breech-piece of the Cochran arm, arising from the fact

that the breech-block in the former contains the main portion of the chamber for the cartridge, while in the latter the chamber for the cartridge is mostly at the rear of the barrel, there is a similarity in the respect that in both guns the chamber for the cartridge is partly in the barrel and partly in the breech-piece. In the Cochran gun the cartridge is inserted ball foremost into the barrel; in the Burnside gun the cartridge is inserted rear end foremost into the block. In the Burnside breech-block there is a sliding breech-pin, the object and purpose of which was as follows: after the cartridge was fired and when the breech was opened, the breech-pin sliding against a cam face in the rear of the chamber, moved forward, and in doing so necessarily started the empty cartridge-shell and loosened it in the chamber, whereupon, by turning the gun up the cartridge-shell dropped out. In the Cochran gun there is also an extractor which starts the cartridge-shell for a certain distance, and then it is to be pulled out with the fingers or may be dropped by bringing the barrel to the vertical. In the Burnside arm there is clearly a locking-bolt, as it is called in the patent, or, properly, a locking-brace, and it is a brace other than the nose of the hammer.

The testimony of General Burnside (Rec. p. 144) is clear as to the construction of the arm. In order to resist the effect of the recoil of the cartridge upon the breech-piece he introduced a locking-bolt or brace, the effect of which is precisely the same as the locking-brace in the Cochran gun. Moreover, it complies with the condition of moving upward and backward in unlocking the breech-piece, if that feature is of any importance in distinguishing the Cochran invention from the former Perry and Lee patents.

Upon the relations of the Burnside gun to the Cochran invention, as a complete anticipation, the testimony of Mr. Henry B. Renwick (Rec. p. 147) is clear and distinct. He analyzes both constructions and reaches the conclusion that, as mechanical devices, the co-operative combinations are the same in both.

Finally, I insist that the Whitney arm, as illustrated by the drawings (p. 194) and by the specimen exhibits, is no infringement of the Cochran patent. It has a swinging breech-piece moving backward and downward around a fixed point, as the Flobert, the Perry and the Lee guns have. It has a brace which holds the breech-piece fast and locks it, and which is independent of the hammer, but such locking-brace is automatic in its action and is peculiarly arranged and combined with the breech-block. Upon the closing of the breech, the brace, which is pivoted upon a fulcrum-pin, swings forward, through the action of an independent spring, and seats itself under a shoulder on the breech-piece. In opening the breech, the first effect is to swing backwards the brace, and the secondary effect is to open the chamber of the rifle. The construction of the arm in this particular, in comparison with the Cochran arm, is intelligently and clearly stated by Mr. Whitney in answer to Q. 8, p. 117, in which he says:

> "When the state of the art preceding the Cochran invention, as exhibited by said four patents, is taken into consideration, though the Whitney rifle has a locking-brace, it is not within the province of the claim, if properly construed, of the Cochran patent. The locking-brace in the Cochran patent is operated by a lever rigidly attached to the same, the motion being in all cases imparted to the locking-brace through said lever by means of the hand both in locking and unlocking the breech-block, while in the Whitney rifle the brace or locking-shoulder is independent of the lever, and when closing acts automatically, receiving its motion, as in

> the Flobert patent, by means of a spring—the said brace in the Whitney rifle being independent of the hammer in all its motions."

See also, upon the same point, the deposition of John E. Earle, Rec. p. 98.

Upon the foregoing grounds, I respectfully submit that the decree of the Circuit Court dismissing the Bill of Complaint should be affirmed.

BENJ. F. THURSTON.